SONY

エディティング　コントロール　ユニット

EDITING CONTROL UNIT

PVE-500

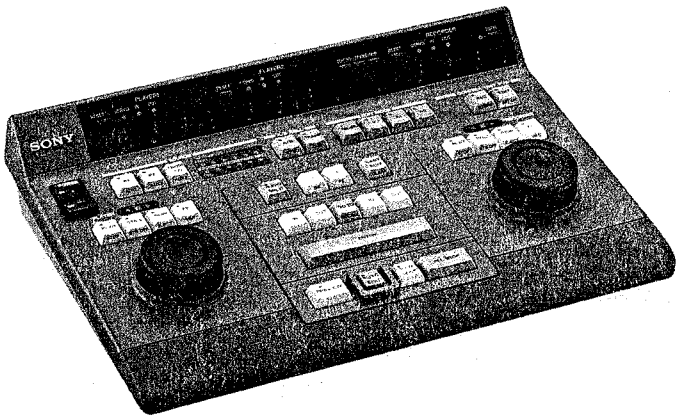
コントロール　パネル　マウント　アダプター

CONTROL PANEL MOUNT ADAPTOR

RMM-500

SERVICE MANUAL

補修用部品表



SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

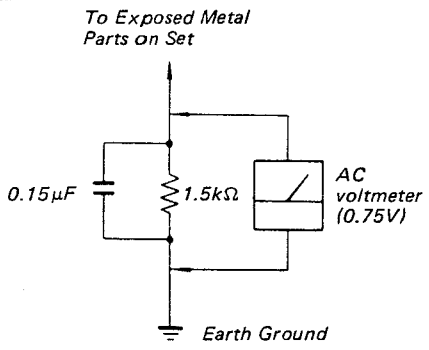


Fig. A. Using an AC voltmeter to check AC leakage.

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SECTION 1
GENERAL

This section is extracted from instruction manual.

About this Manual

This section describes the organization of this manual and some conventions of notation used.

Intended audience

This manual is a guide to the PVE-500 editing control unit.
It is intended to be read by persons responsible for the operation of professional video equipment, for example, at cable television stations and corporate production facilities. Therefore it assumes that readers will be familiar with the basic concepts of video editing and have some experience in operating professional video equipment.

Manual organization

The organization of this manual is as follows.

Chapter 1 Outline
Explains the principal features of the unit and optional accessories.

Chapter 2 Names and Functions of Parts
Briefly explains the function of each of the switches, controls, and connectors on the control and connector panels.
Persons already familiar with professional or broadcast editing equipment can obtain a general grasp of the unit's capabilities by reading through this chapter.

Chapter 3 Preparations
Covers matters which you need to know before using the unit, such as how to connect external equipment to this unit in order to configure a complete editing system, and preparations to make before starting to edit.

Chapter 4 Basic Editing — Cut Edits
Explains how to perform basic cut edits, using one player and one recorder, for instantaneous switching between program sources.

Chapter 5 Editing with Two Players — A/B Roll Edits
Explains how to perform A/B roll edits in which you can add special effects while switching between the playback signals of two players, using a video switcher and an audio mixer connected to this unit.

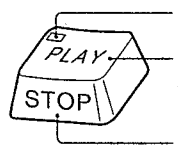
Chapter 6 Advanced Editing
Explains advanced techniques not covered in previous chapters.

Chapter 7 Managing Edit Data — The Edit Decision List (EDL)
Explains how to save settings made in order to execute an automatic edit, and how to recall the settings and use them again.

Appendix
Contains a list of error messages with instructions on how to respond, a list of steps to take when you suspect trouble with the unit, specifications, and a glossary of technical terms used in this manual.

Conventions

Button names
As shown in the example below, some of the buttons on this unit have two functions, depending on whether they are pressed alone or in combination with the ENTRY button. The two functions are indicated on the top and front sides of the button.



Indicator (LED)

PLAY button
When pressed alone, this button functions as the PLAY button. This manual refers to it simply as the PLAY button.

STOP (ENTRY + PLAY) button
When pressed together with the ENTRY button, this button functions as the STOP button. This manual refers to it as the STOP (ENTRY + PLAY) button, with the keys to press indicated in parentheses.

Control panel illustrations
The numbers of buttons and switches in illustrations of the control panel correspond to steps in the procedure under discussion. In order to keep the illustrations simple, frequently used buttons are sometimes mentioned in the text but not numbered in the illustrations.

Cross references
References to other manuals or to sections of this manual containing related information appear in italics.

Technical terms
Technical terms are explained in a glossary in the Appendix to this manual.

Chapter 1
Outline

This chapter explains the principal features of the unit and optional accessories.

Principal Features ..... 1-2 (E)
Optional Accessories ..... 1-4 (E)

Principal Features

The PVE-500 is an electronic editing control unit which allows you to perform advanced editing easily and efficiently.
You can connect a video switcher, an audio mixer, and up to three VTRs to configure an A/B roll editing system. The principal features of the unit are as follows.

Controls up to three VTRs
You can control two players and one recorder by remote control from the control panel of this unit. The control panel features independent search dials and control buttons for the players and the recorder, allowing you to locate edit points quickly and precisely.

Three time counters
There are three time counters, allowing you to view time count data for two players and one recorder simultaneously.

Video switcher control
You can connect video switchers equipped with a 9-pin serial interface, such as DFS-500 series or BVS-3000 series video switchers, using the optional 9-pin remote cable. Remote control of the video switcher allows you to:
- execute automatic transitions for special effects when switching between the playback of selected players.
- control the DFS-500 snapshot function, for automatic storing and recalling of snapshots in coordination with edits stored in this unit.

Audio mixer control
You can connect a VSP-A600, MXP-290, or MXP-390 series audio mixer, or another audio mixer equipped with a 15-pin parallel or 9-pin serial interface, using the optional mixer control cable or a 9-pin remote cable. Remote control of the audio mixer allows you to switch the audio signals of selected players and to control automatic transition effects.

A/B roll editing
You can create A/B roll effects such as wipes and dissolves. The A and B signals can be selected from a total of five sources, including two players and three auxiliary input sources.

SYNC roll editing
You can synchronize two player VTRs to execute effects automatically at specified edit points.

Flexible edit modes
You can choose between assemble mode, for simultaneous editing of video and two audio channels, or insert mode, which allows you to edit video and audio separately or in combination. In insert mode, you can specify separate IN points (edit start points) for audio and video (split editing).

Dynamic Tracking (DT)[1] for variable-speed editing
If your player supports dynamic tracking, you can edit freeze frame or variable speed playback.

GPI[2] output
You can output trigger signals to control external equipment when you execute an edit.

Edit Decision List
You can register data for up to 100 edits in an edit decision list (EDL) stored in the unit's internal memory (internal EDL mode). Internal EDL data can be recalled and changed at any time. It remains in the unit's internal memory for at least 100 hours after the power is turned off (provided that the unit has been powered on for at least two hours). To save edit data permanently, you can connect a personal computer or other external I/O device. You can also choose to output edit data to the external I/O device each time you execute an automatic edit (external EDL mode).

Reference video signals for precise synchronization
The unit can use reference video signals for precise synchronization. If you set the 75-ohm terminator switch to OFF, reference video signal input can be output to other equipment using a T connector.

Start delay measurement
The unit automatically measures the amount of time which a connected VTR requires to achieve stable tape movement after receiving a start command. Information for each VTR is stored in the unit's internal memory. It remains available for at least 100 hours after the unit is turned off (provided that the unit has been powered on for at least two hours).

Easy setup and initialization
Slide switches are available on the front panel for easy setting and selection of time codes, CTL counts, preroll[3] times, and synchronization modes. Less frequently used settings are made using the search dials and a setup menu.

Error messages
The unit alerts you to mistaken operations with a warning sound and a concise error message.

Rack mounting
With the RMM-500 control panel mount adaptor, you can mount this unit in a standard EIA[4] 19-inch rack or editing operation desk.

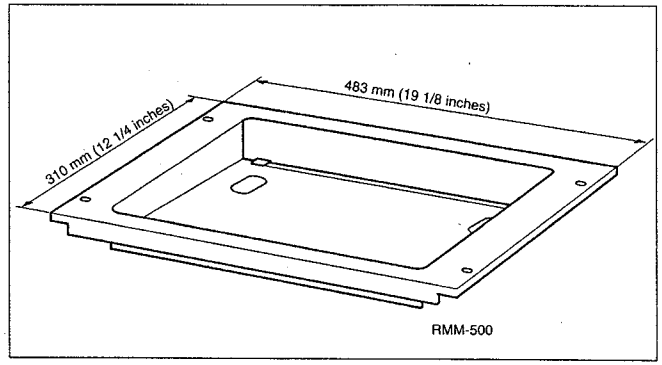
1) DT is a trademark of Sony Corporation.
2) GPI: General Purpose Interface
3) Preroll: An operation in which a VTR begins to run its tape from a point a few seconds in advance of the edit IN point, enabling the tape to reach a steady speed at the edit IN point and to synchronize with other video tapes.
4) EIA: Electronic Industries Association

Optional Accessories

Optional accessories such as the following are available for purchase for use with this unit.

RMM-500 control panel mount adaptor

An adaptor which allows you to mount the unit in a standard EIA 19-inch rack or editing desk. For details please contact a Sony sales representative.



RMM-500 control panel mount adaptor

RCC-5AA mixer control cable

A 9-pin/15-pin conversion cable for use in connecting an audio mixer equipped with a 15-pin parallel interface (VSP-A600, MXP-290, MXP-P390, etc.) to this unit.

RCC-5G/10G/30G

Cables for use in connecting a video switcher or an audio mixer equipped with a 9-pin serial interface (MXP-S390, etc.) to this unit.

Chapter 2
Names and Functions of Parts

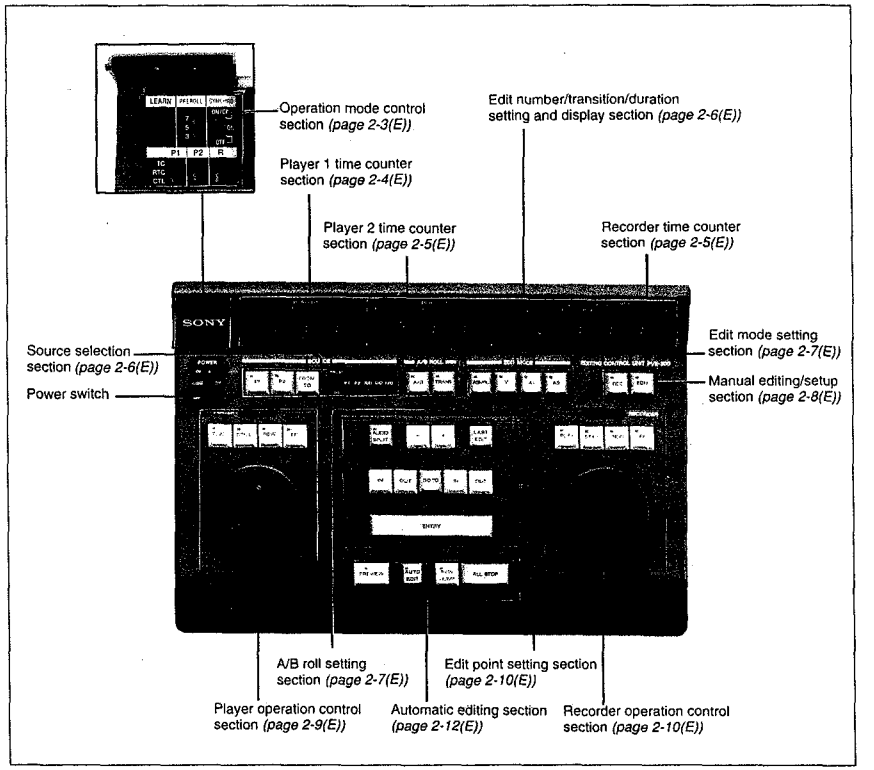
This chapter briefly explains the function of each of the switches, controls, and connectors on the control and connector panels.

For more detailed information about how to use the controls to set up and operate the unit, see the following sections.

Control Panel ..... **2-2 (E)**
Connector Panel ..... **2-13 (E)**

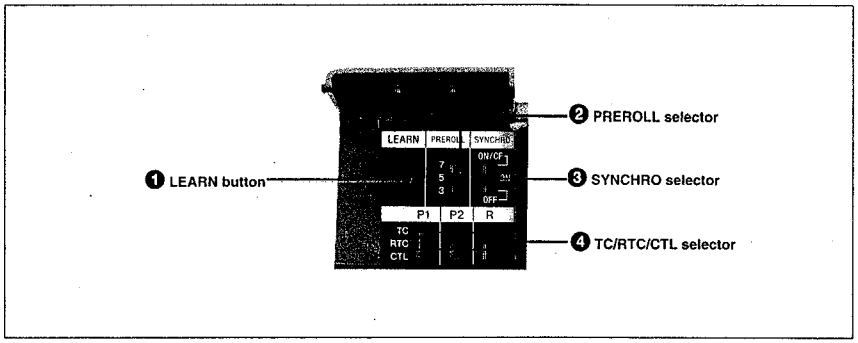
Control Panel

The control panel is configured as follows. Detailed information for each of the controls is given on the pages indicated in parentheses.


Operation mode control section (page 2-3(E))
Edit number/transition/duration setting and display section (page 2-6(E))
Player 1 time counter section (page 2-4(E))
Player 2 time counter section (page 2-5(E))
Recorder time counter section (page 2-5(E))
Source selection section (page 2-6(E))
Power switch
Edit mode setting section (page 2-7(E))
Manual editing/setup section (page 2-8(E))
A/B roll setting section (page 2-7(E))
Edit point setting section (page 2-10(E))
Player operation control section (page 2-9(E))
Automatic editing section (page 2-12(E))
Recorder operation control section (page 2-10(E))

Control panel

Operation mode control section



Operation mode control section

❶ LEARN button
Press to automatically measure the start delays of the connected VTRs.

❷ PREROLL (preroll time) selector
Set the preroll time to 7 (or 10) seconds, 5 seconds, or 3 seconds. If you set this selector to 7 seconds, the preroll time will be either 7 or 10 seconds, depending on the setting made using the setup menu.

❸ SYNCHRO (synchronization) selector
Determines whether or not to synchronize and use color framing.

ON/CF: Synchronizes and uses color framing. This yields a stable picture, but editing precision is slightly lower.

ON: Synchronizes but does not use color framing.

OFF: Does not synchronize.

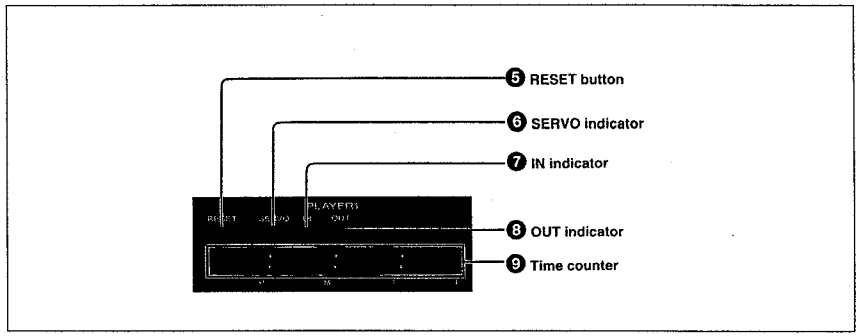
❹ TC/RTC/CTL (edit reference) selectors (for player 1, player 2, and recorder)
Determine the time counter display format for player 1 (P1), player 2 (P2), and the recorder (R).

TC: Displays the recorded time code (absolute value). The display is not reset even if you press the RESET button.

RTC: Displays an incremented or decremented time code after reset (relative value). Reset when you press the RESET button.

CTL: Displays a CTL pulse count after reset. Reset when you press the RESET button.

Player 1 time counter section



Player 1 time counter section

❺ RESET button
Press to reset the time counter ❾ and to reset edit points.

❻ SERVO indicator (green)
Lights when player 1 is running with the servo locked.

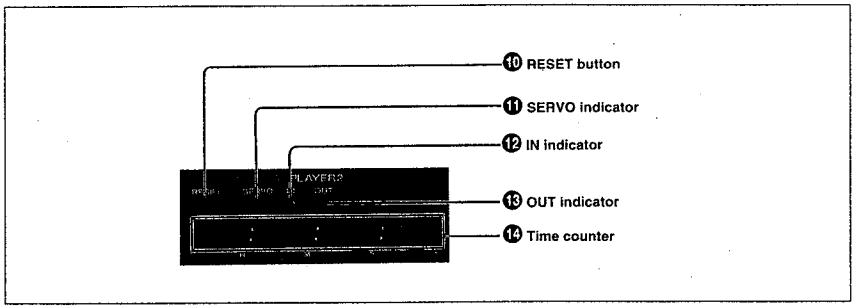
❼ IN (edit start point) indicator (red)
Lights when an IN point has been set for player 1, and flashes to indicate that an IN point needs to be set. Flashes at high speed while an IN point or duration (distance from an IN point to an OUT point) is being displayed in the time counter ❾.

❽ OUT (edit end point) indicator (red)
Lights when an OUT point has been set for player 1, and flashes to indicate that an OUT point needs to be set. Flashes at high speed while an OUT point or duration is being displayed in the time counter ❾.

❾ Time counter
Depending upon the setting of the TC/RTC/CTL selector, displays an absolute or relative time code for player 1, or a control signal count. During setup with the setup menu, displays the menu item number.

Error messages are also displayed in this time counter.

Player 2 time counter section

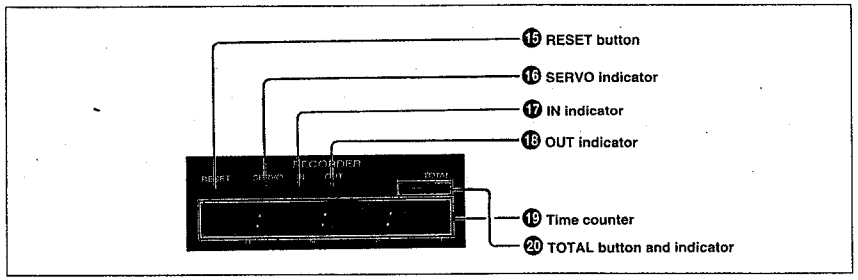


Player 2 time counter section

During setup with the setup menu, the time counter ⑭ displays an abbreviated item title.

Other buttons and indicators have the same functions as those explained in the previous section "Player 1 time counter section."

Recorder time counter section



Recorder time counter section

From the RESET button ⑮ to the OUT indicator ⑱, these buttons and indicators have same functions as those explained under items ❺ to ❽ in "Player 1 time counter section" (page 2-4(E)).

⑲ Time counter

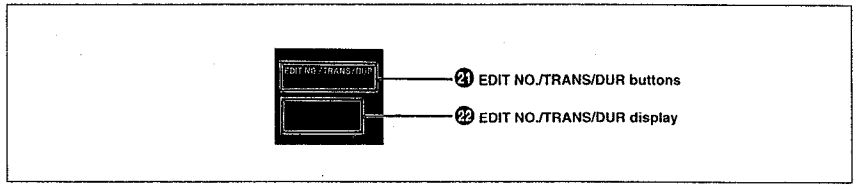
Depending upon the settings of the TC/RTC/CTL selector and the TOTAL button ⑳, displays an absolute or relative time code, a CTL signal count, or the recorder's total running time. During setup with the setup menu, displays the setup item data. Error messages are also displayed in this time counter.

⑳ TOTAL (tonal running time) button and indicator (red)

Press the TOTAL button if you want to display the recorder's total running time in the time counter. The indicator begins to flash when you press the button. Press the button again to restore the time counter's original display.

If you want to reset the total running time, press the RESET button ⑮ while the total running time is displayed in the time counter.

Edit number/transition/duration setting and display section



Edit number/transition/duration setting and display section

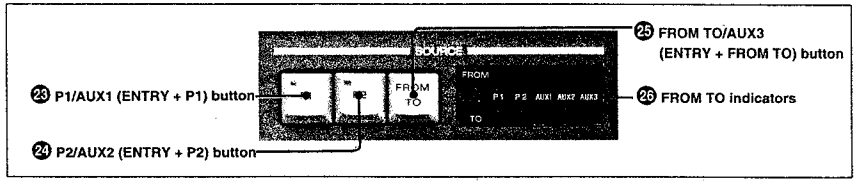
㉑ EDIT NO./TRANS/DUR (edit number/ transition/duration) buttons

Use to set the edit number, effect transition time, or the duration of an edit segment. The three buttons correspond to the three digits in the display ㉒.

㉒ EDIT NO./TRANS/DUR display

To interpret the number in this display, check the TRANS button in the A/B roll setting section. If the TRANS button is lit, this display shows an effect transition time. If the button is flashing, the display shows an edit duration. If the button is out, the display shows the current edit number.

Source selection section


㉓ P1/AUX1 (ENTRY + P1) button
㉔ P2/AUX2 (ENTRY + P2) button
SOURCE
FROM
TO
P1 P2 AUX1 AUX2 AUX3
㉕ FROM TO/AUX3 (ENTRY + FROM TO) button
㉖ FROM TO indicators

Source selection section

㉓ P1/AUX1 (ENTRY + P1) button

P1 (player 1): Press to select the VTR connected to the PLAYER 1 connector as the source. The button lights when you press it.

AUX1 (ENTRY + P1)(auxiliary source 1): Press to select the equipment connected to the AUX1 connector as the source, for example, a camera connected to a video switcher.

㉔ P2/AUX2 (ENTRY + P2) button

P2 (player 2): Press to select the VTR connected to the PLAYER 2 connector as the source. The button lights when you press it.

AUX2 (ENTRY + P2)(auxiliary source 2): Press to select the equipment connected to the AUX2 connector as the source, for example a camera connected to a video switcher.

㉕ FROM TO/AUX3 (ENTRY + FROM TO) button

FROM TO: Press to change the FROM source (source before a transition) or the TO source (source after a transition).

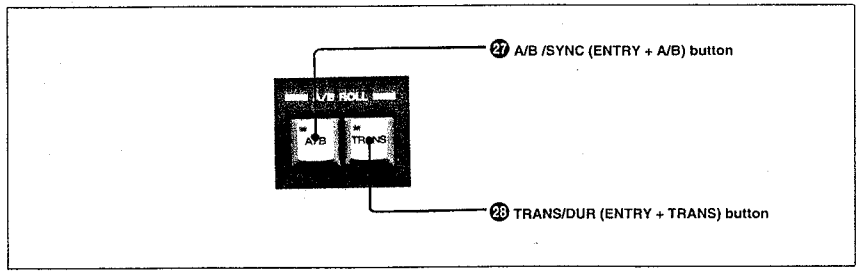
AUX3 (ENTRY + FROM TO)(auxiliary source 3): Press to select the equipment connected to the AUX3 connector as the source, for example a camera connected to a video switcher.

㉖ FROM TO indicators

Green: Indicate whether the next operation will be carried out using the FROM source or the TO source.

Red: Indicate the currently selected FROM and TO sources.

A/B roll setting section



A/B roll setting section

㉗ A/B/SYNC (ENTRY + A/B) button

A/B (A/B roll): Press to select A/B roll mode. The button lights.

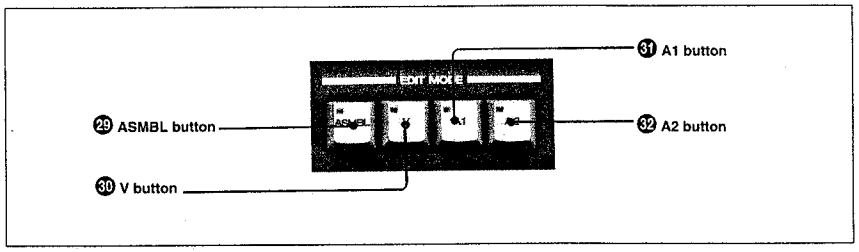
SYNC (ENTRY + A/B)(SYNC roll): Press to select SYNC roll mode. The button begins to flash.

㉘ TRANS/DUR (ENTRY + TRANS) button

TRANS (transition): Press to set the effect transition time. The button lights.

DUR (ENTRY + TRANS)(duration): Press to set the edit duration. The button begins to flash.

Edit mode setting section



Edit mode setting section

㉙ ASMBL (assemble) button

Press to select assemble mode. The button lights. If any of the insert mode buttons are lit, press them to exit insert mode before pressing this button.

For information about the assemble and insert modes, see "Selecting the Edit Mode" (page 4-3(E)).

㉚ V (video) button

Press to select video insert mode. The button lights. If the ASMBL button is lit, press it to exit assemble mode before pressing this button.

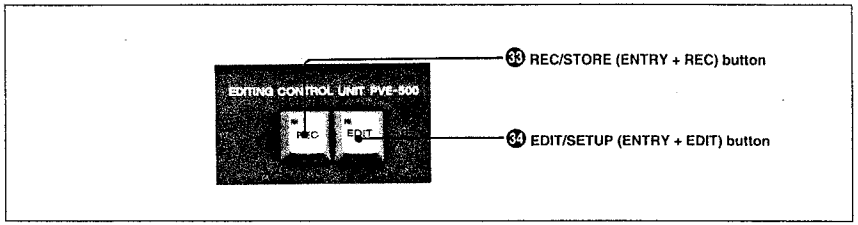
㉛ A1 (audio 1) button

Press to select channel 1 audio insert mode. The button lights. If the ASMBL button is lit, press it to exit assemble mode before pressing this button.

㉜ A2 (audio 2) button

Press to select channel 2 audio insert mode. The button lights. If the ASMBL button is lit, press it to exit assemble mode before pressing this button.

Manual editing/setup section



Manual editing/setup section

㉝ REC/STORE (ENTRY + REC) button

REC (record): Press to put the unit into E-E mode [1]. While you keep the button pressed, the recorder's video, audio 1 and audio 2 input signals are output to the monitor but not recorded.
For manual editing, press this button together with the PLAY button ㊶ in the recorder operation control section at the point where you wish to begin recording.

STORE (ENTRY + REC): If the unit is in internal EDL mode (*see page 7-3(E)*), edit data is saved in the unit's internal memory. If this button is pressed while you are using the setup menu, setup data for the current menu item is written to the unit's EEPROM [2].

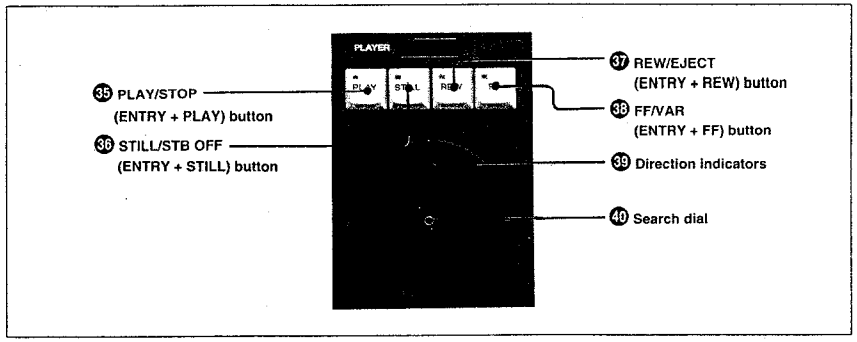
㉞ EDIT/SETUP (ENTRY + EDIT) button

EDIT: Press to put the unit into E-E mode, using the edit mode set with the edit mode buttons. While you keep the button pressed, the recorder's input signals selected by the edit mode are output to the monitor but not recorded.
For manual editing, press this button together with the PLAY button ㊶ in the recorder operation control section at the point where you wish to begin recording.

SETUP (ENTRY + EDIT): Press to call up the search dial setup menu (setup mode).

1) E-E: Electric-to-Electric
2) EEPROM: Electrically erasable programmable ROM

Player operation control section


PLAYER
35 PLAY/STOP (ENTRY + PLAY) button
36 STILL/STB OFF (ENTRY + STILL) button
37 REW/EJECT (ENTRY + REW) button
38 FF/VAR (ENTRY + FF) button
39 Direction indicators
40 Search dial

Player operation control section

35 PLAY/STOP (ENTRY + PLAY) button

PLAY: Plays the tape.
STOP (ENTRY + PLAY): Stops the tape.

36 STILL/STB OFF (ENTRY + STILL) button

STILL: Gives a still picture.
STB OFF (ENTRY + STILL)(standby off): Press when the unit is paused or displaying a still picture and you want to exit standby mode (standby off).

37 REW/EJECT (ENTRY + REW) button

REW (rewind): Rewinds the tape.
EJECT (ENTRY + REW): Ejects the cassette.

38 FF/VAR (ENTRY + FF) button

FF (fast forward): Fast forwards the tape.
VAR (ENTRY + FF)(variable): When using a player which supports Dynamic Tracking (DT), press the search dial to bring it to the raised position, then press this button. You will be able to edit noiseless. variable-speed playback (DT editing). The direction indicator 39 flash in red while you are running a tape in variable-speed mode.

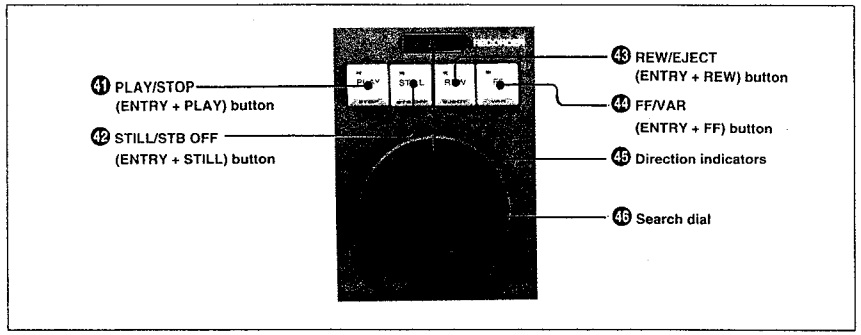
39 Direction indicators

Light to show the tape direction. The indicators go out when the unit is in standby off mode.

40 Search dial

Controls the movement of the tape. Use while searching for an edit point or during DT playback. The dial has two positions: a raised position for shuttle mode playback and a depressed position for jog mode playback. Press the dial to move from one mode to the other.
If your player supports Dynamic Tracking (DT) playback, you can use this dial to perform noiseless editing of variable-speed playback. With the search dial in the raised position, press the VAR (ENTRY + FF) button 38 to enter variable playback mode.

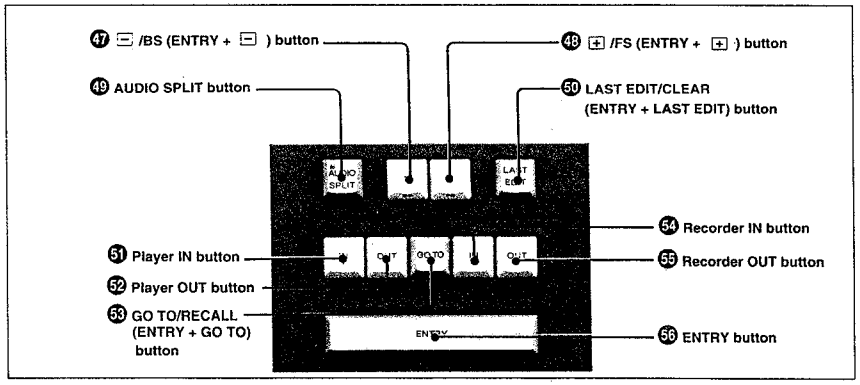
Recorder operation control section


41 PLAY/STOP (ENTRY + PLAY) button
42 STILL/STB OFF (ENTRY + STILL) button
43 REW/EJECT (ENTRY + REW) button
44 FF/VAR (ENTRY + FF) button
45 Direction indicators
46 Search dial

Recorder operation control section

These controls have the same functions as those explained in "Player operation control section" (page 2-9(E)). If your recorder supports Dynamic Tracking (DT), you can use it for noiseless, variable-speed playback.

Edit point setting section


47 ⊟ /BS (ENTRY + ⊟) button
48 ⊞ /FS (ENTRY + ⊞) button
49 AUDIO SPLIT button
50 LAST EDIT/CLEAR (ENTRY + LAST EDIT) button
51 Player IN button
52 Player OUT button
53 GO TO/RECALL (ENTRY + GO TO) button
54 Recorder IN button
55 Recorder OUT button
56 ENTRY button

Edit point setting section

47 ⊟ /BS(ENTRY +⊟) button

⊟ (Trim –): Press this button together with the IN button 51, 54 or OUT button 52, 55 when you want to move an IN or OUT point one frame back. Keep the buttons pressed to execute this function continuously. When you want to shift an entire edit segment, press this button together with both the IN and OUT buttons. The IN and OUT points will be moved one frame back.
BS (ENTRY + ⊟)(previous edit): In internal EDL mode, calls up the previous edit. Keep this button pressed to execute this function continuously.

㊽ ⊞ /FS(ENTRY + ⊞) button

⊞ (Trim +): Press this button together with the IN button ㊶, ㊹ or OUT button ㊷, ㊺ when you want to move an IN or OUT point one frame forward. Keep the buttons pressed to execute this function continuously. When you want to shift an entire edit segment forward, press this button together with both the IN and OUT buttons. The IN and OUT points will be moved one frame forward.

FS (ENTRY + ⊞)(next edit): In internal EDL mode, calls up the next edit. Keep this button pressed to execute this function continuously.

㊾ AUDIO SPLIT button

To perform split editing, press this button so that it lights, then enter the audio IN point.

㊿ LAST EDIT/CLEAR (ENTRY + LAST EDIT) button

LAST EDIT: Recalls the contents of the previous preview[1].
In internal EDL mode, you can also press this button when you want to restore the last edit after clearing it.

CLEAR (ENTRY + LAST EDIT): In internal EDL mode, clears the current edit.

(51) Player IN button

To set a player IN point, press this button together with the ENTRY button (56).
To confirm the IN point of the currently selected player, press this button alone. While you hold it down, the IN point is displayed in the time counter.
To display the duration, press this button together with the player OUT button (52).

(52) Player OUT button

To set a player OUT point, press this button together with the ENTRY button (56).
To confirm the OUT point of the currently selected player, press this button alone.

(53) GO TO/RECALL (ENTRY + GO TO) button

GO TO: This button allows you to view the picture at an IN point or OUT point. Press it together with the IN button (51), (54) or OUT button (52), (55).

RECALL (ENTRY + GO TO): When an edit number is being displayed in the time counter, press this button to make it the current edit.

(54) Recorder IN button

To set a recorder IN point, press this button together with the ENTRY button (56).
To confirm the recorder IN point, press this button alone. While you hold it down, the IN point is displayed in the time counter.
To display the duration, press this button together with the recorder OUT button (55).

(55) Recorder OUT button

To set a recorder OUT point, press this button together with the ENTRY button (56).
To confirm the recorder OUT point, press this button alone.

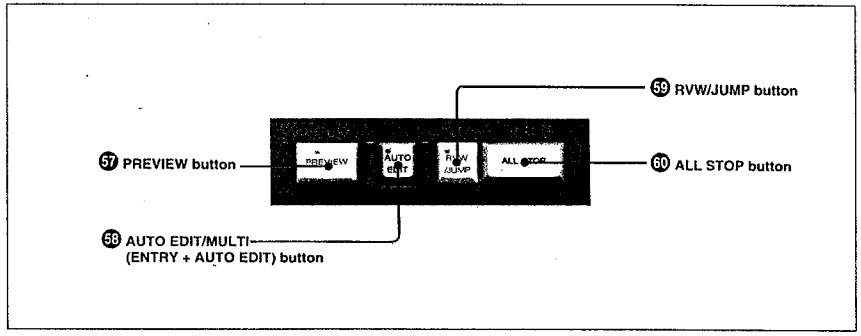
(56) ENTRY button

Press this button together with other buttons to set IN or OUT points or select the function written on the front side of another button.

1) To rehearse an edit segment without recording.

Control Panel

Automatic editing section



Automatic editing section

(57) PREVIEW button

Press to conduct a rehearsal of the edit. The button lights.

(58) AUTO EDIT/MULTI (ENTRY + AUTO EDIT) button

AUTO EDIT: Press to start an automatic edit. The button lights.

MULTI (ENTRY + AUTO EDIT)(multiple edits): In internal EDL mode, press when you want to execute two or more edits in succession, beginning with the current edit. The edits are executed until the last one has finished or until you press the ALL STOP button (60).

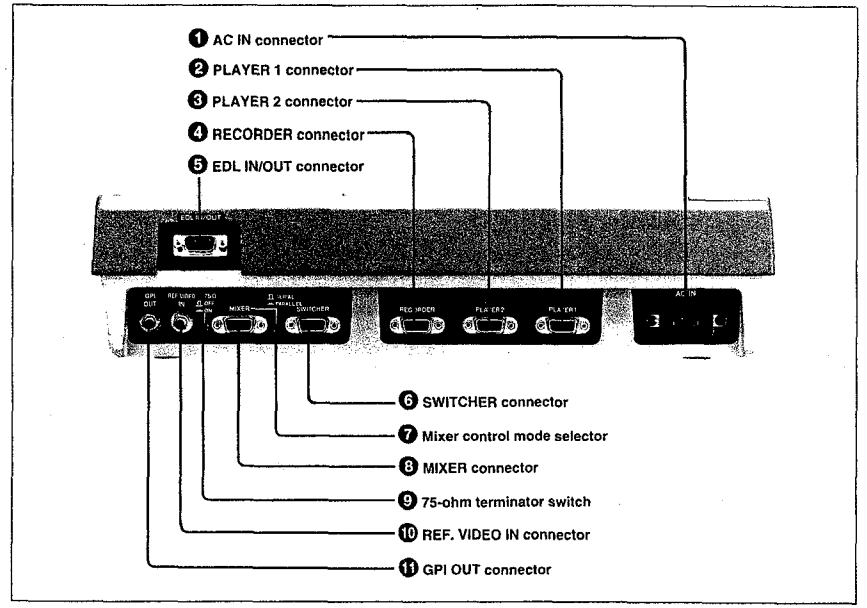
(59) RVW/JUMP (review/jump) button

Press when you want to review an edit after recording it. The recorder plays back the edit. During playback, press once more to jump to a point 5 seconds before the OUT point.

(60) ALL STOP button

Stops all VTRs. Press to stop a preview, automatic edit, or review.

Connector Panel



Connector panel

❶ AC IN connector
Connect the supplied power cord to an AC power outlet.

❷ PLAYER 1 connector (D-SUB 9-pin, female)
Connect a VTR as player 1, using a 9-pin remote cable (not supplied).

❸ PLAYER 2 connector (D-SUB 9-pin, female)
Connect a VTR as player 2, using a 9-pin remote cable (not supplied).

❹ RECORDER connector (D-SUB 9-pin, female)
Connect a VTR as the recorder, using a 9-pin remote cable (not supplied).

❺ EDL IN/OUT connector (D-SUB 9-pin, male)
Connect to a personal computer or external I/O device, for input/output of EDL data.

❻ SWITCHER connector (D-SUB 9-pin, female)
Connect a video switcher, using a 9-pin remote cable (not supplied).

❼ Mixer control mode selector
Set to PARALLEL or SERIAL, according to the interface of the audio mixer connected to the MIXER connector ❽.

❽ MIXER connector (D-SUB 9-pin, female)
Connect an audio mixer. If the mixer has a 9-pin serial interface, connect with a 9-pin remote cable (not supplied). If it has a 15-pin parallel interface, connect with the Sony mixer control cable (not supplied).

❾ 75-ohm terminator switch
Set to OFF if you have connected a T connector to the REF. VIDEO IN connector ❿ for loopthrough output of reference video signals to other equipment. Otherwise set to ON.

Connector Panel

❿ REF. VIDEO IN connector (BNC type)
Input reference video signals.

⓫ GPI OUT connector (BNC type)
Output trigger signals to external equipment. Use setup menu items 06 to 08 to set the timing and pulse width.

For more information about the setup menu, see "PVE-500 Setup (Initialization)" (page 3-8(E)).

Chapter 3
Preparations

This chapter explains preparations which you need to make before starting to edit.

Precautions ..... 3-2 (E)
Connections ..... 3-3 (E)
Preparations for Editing ..... 3-7 (E)
PVE-500 Setup (Initialization) ..... 3-8 (E)
Measuring Start Delays ..... 3-14 (E)
Preparing Tapes for Editing ..... 3-15 (E)

Precautions

Safety precautions

Power
Supply 120V (for U.S. and Canada)/220 to 240V (for Europe) AC power.
Do not place or drop heavy objects on the power cord. Protect the cord from damage. Using a damaged power cord is dangerous.
Do not grasp the cord when pulling out of a power outlet. Grasp by the plug.

Do not disassemble
Do not open the cabinet. There is a danger of shock if you touch the parts inside the unit.

Do not drop foreign objects into the unit
Do not drop flammable or metal objects into the unit. Protect from water and liquids. Foreign objects dropped into the unit can cause malfunctions.

In case of trouble
If you notice unusual noises, smells, or smoke coming from the unit, turn it off immediately. Pull the power plug from the outlet, disconnect external equipment and contact your retailer or a Sony sales representative.

Usage precautions

Usage and storage conditions
Avoid using or storing the unit in places which are
- very hot or cold (usage temperature range 5°C to 40°C/41°F to 104°F).
- exposed to direct sunlight, or near heaters.
- damp or dusty.
- subject to severe vibrations.
- near equipment generating strong electromagnetic emissions.
- near transmitting stations generating strong radio waves.

Protect from shocks
Avoid dropping the unit or subjecting it to strong shocks.

Maintenance
Clean the cabinet and panels by wiping with a soft, dry cloth. Remove severe stains by wiping with a cloth moistened with a neutral solvent, then wipe with a soft, dry cloth. Do not clean with alcohol, benzine, thinner, or other volatile liquids. Doing so may damage the paint or finish.

Transporting the unit
When transporting the unit, protect from shocks by packing in the supplied carton or a comparable case.

Connections

You can connect the unit to the following kinds of external equipment.

External Equipment

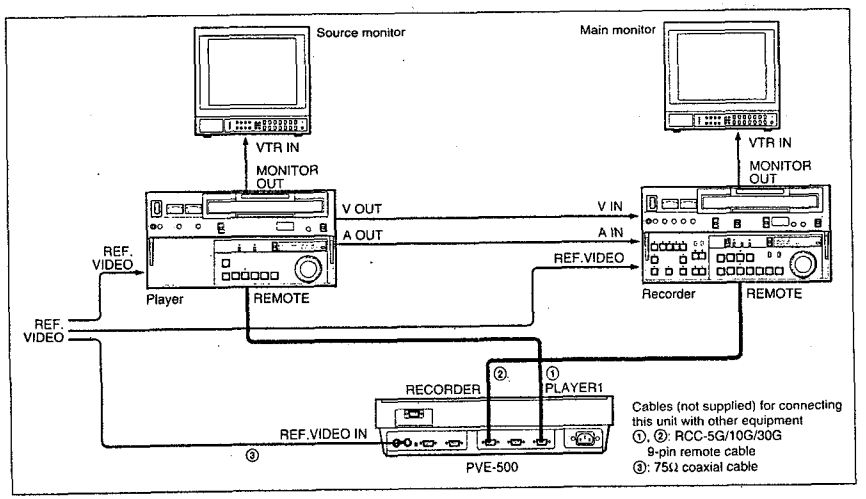
External Equipment	Model
VTR	VTRs with 9-pin remote connector BVH, DVR, DVW, BVW, PVW, UVW, BVU, VO, EVO, SVO/SVP, PCM and LVR/LVA series
Video switcher	DFS-500, BVS-3000, DVS-8000, DVS-6000, DVS-2000 series BVS-V1201, BVS-A1201, BVS-1100A, GVG model 100
Audio mixer	• Audio mixers with 15-pin parallel interface MXP-29, MXP-290/290R, MXP-P390/P390R, VSP-A600/A600R • Audio mixers with 9-pin serial interface MXP-S390/S390R, VSP-8000, DMX-E3000, DMX-E2000

Optional cables must be purchased to connect external equipment. Depending upon the model, some features of the external equipment may not be supported.

For more information, contact a Sony sales representative.

The following will explain connections for three systems:
- A cut editing system with one player and one recorder.
- A cut editing system with two players, one recorder, a video routing switcher, and an audio routing switcher.
- An A/B roll system with two players, one recorder, a video switcher, and an audio mixer.

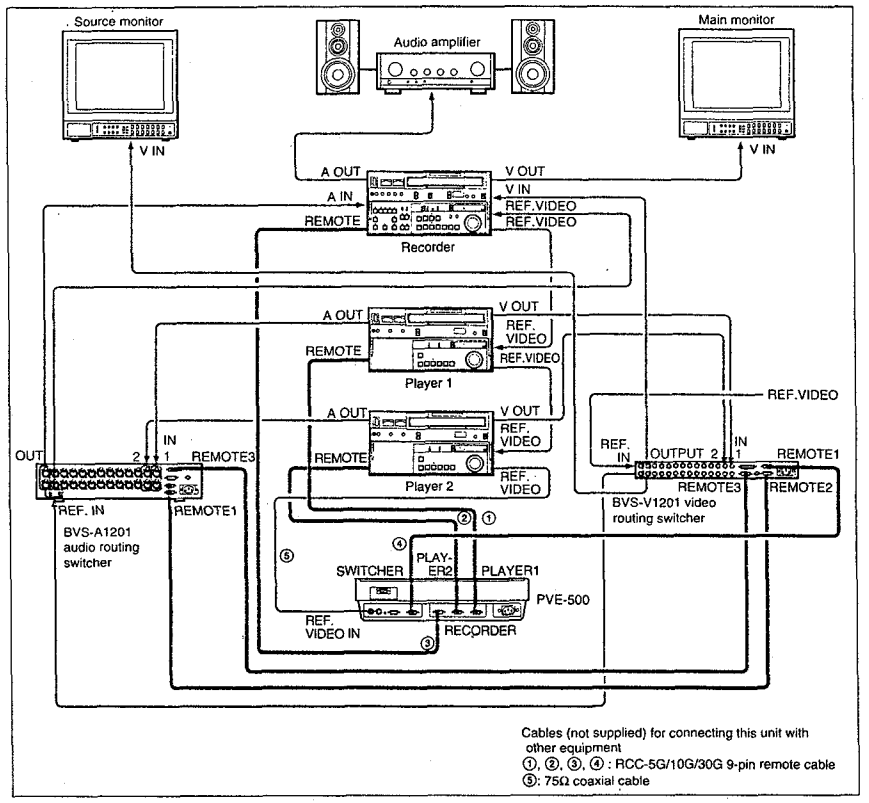
Cut editing system with one player and one recorder



Cut editing system using one player and one recorder

Cut editing system with two players, one recorder, a video routing switcher, and an audio routing switcher

The illustration shows connections for a system using the BVS-V1201 video routing switcher and the BVS-A1201 audio routing switcher.



Cut editing system using a video routing switcher and an audio routing switcher

Set the board switches of the BVS-V1201 and BVS-A1201 as follows:

BVS-V1201 board settings

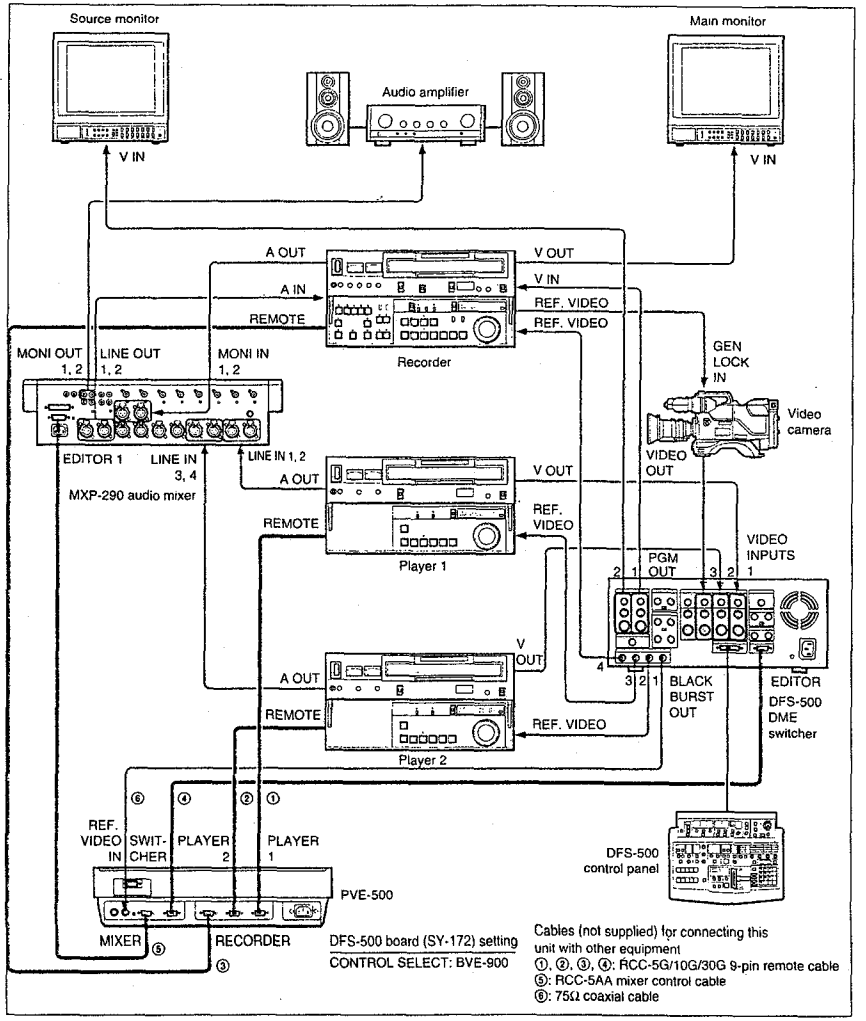
IF-278 board		VSW-22 board
S1-1: OFF	S2-4: OFF	JW1: 1
S1-2: OFF	S2-5: OFF	JW2: 1
S1-8: ON	S2-6: OFF	JW4: 1
S2-1: ON	S2-7: OFF	JW5: 1
S2-2: OFF	S2-8: OFF	
S2-3: OFF	JW1: 1	

BVS-A1201 board settings

IF-278 board		ASW-18F board
S1-1: OFF	S2-4: ON	JW1: 1
S1-2: ON	S2-5: OFF	JW2: 1
S1-8: ON	S2-6: OFF	JW3: 1
S2-1: OFF	S2-7: OFF	
S2-2: OFF	S2-8: OFF	
S2-3: ON	JW1: 2	

A/B roll system with two players, one recorder, a video switcher, and an audio mixer

The illustration shows connections for a system using the DFS-500 DME switcher and the MXP-290 audio mixer.



A/B roll system using the DFS-500 DME switcher and the MXP-290 audio mixer

Crosspoint for source selection buttons and equipment connected to MIXER or SWITCHER connectors (MXP-290 and DFS-500)

The table below shows the correspondences between this unit's source selection buttons and connectors of the MXP-290 audio mixer and the DFS-500 DME switcher.

Crosspoints for the AUX 3 (ENTRY + FROM TO) button are determined by the settings of setup menu items 22 (AUX 3 SWITCHER CROSSPOINT) and 23 (AUX 3 MIXER CROSSPOINT).

For more information, see "PVE-500 Setup (Initialization)" (page 3-8(E)).

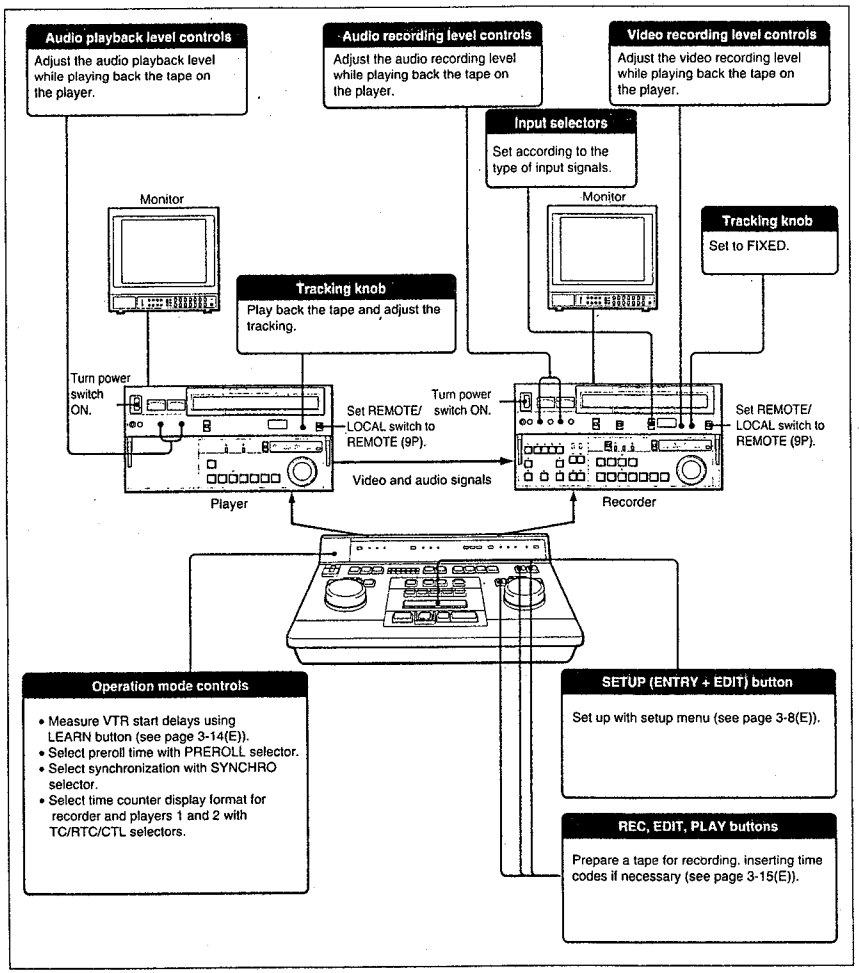
MXP-290 and DFS-500 crosspoints

Source selection button	MXP-290 connector	DFS-500 connector
P1	LINE IN 1, 2	VIDEO INPUT 1
P2	LINE IN 3, 4	VIDEO INPUT 2
AUX 1 (ENTRY + P1)	LINE IN 5, 6	VIDEO INPUT 3
AUX 2 (ENTRY + P2)	LINE IN 7, 8	VIDEO INPUT 4

For information about crosspoints for other mixers and switchers, please contact a Sony service representative.

Preparations for Editing

Example: Cut editing system with one player and one recorder.


Audio playback level controls
Adjust the audio playback level while playing back the tape on the player.
Audio recording level controls
Adjust the audio recording level while playing back the tape on the player.
Video recording level controls
Adjust the video recording level while playing back the tape on the player.
Input selectors
Set according to the type of input signals.
Monitor
Monitor
Tracking knob
Set to FIXED.
Tracking knob
Play back the tape and adjust the tracking.
Turn power switch ON.
Set REMOTE/ LOCAL switch to REMOTE (9P).
Turn power switch ON.
Set REMOTE/ LOCAL switch to REMOTE (9P).
Video and audio signals
Player
Recorder
Operation mode controls
• Measure VTR start delays using LEARN button (see page 3-14(E)).
• Select preroll time with PREROLL selector.
• Select synchronization with SYNCHRO selector.
• Select time counter display format for recorder and players 1 and 2 with TC/RTC/CTL selectors.
SETUP (ENTRY + EDIT) button
Set up with setup menu (see page 3-8(E)).
REC, EDIT, PLAY buttons
Prepare a tape for recording, inserting time codes if necessary (see page 3-15(E)).

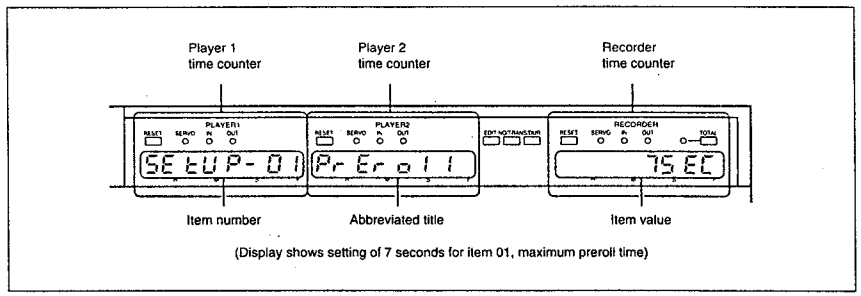
Preparations for editing

- For VTRs able to read VITC time codes, set to read both LTC and VITC time codes (set VITC/AUTO/LTC selector to AUTO).
  However, set to LTC if the VITC and LTC codes on the playback tape do not coincide.
- For VTRs which feature a built-in time code generator, set the following switches.
  EXT/INT switch: INT
  REGEN/PRESET switch: PRESET
  FREE RUN/REC RUN switch: FREE RUN

For more information about VTR settings and adjustments, refer to your VTR's operation manual.

PVE-500 Setup (Initialization)

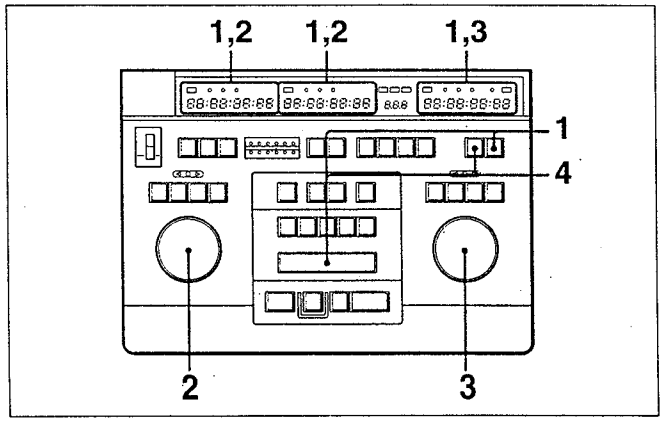
Except for items which are set using buttons and switches on the control panel, initialize using the search dial and setup menus. To use the setup menu, press the SETUP (ENTRY + EDIT) button to put the unit into setup mode. In setup mode, settings are displayed as follows. Data stored to the unit's EEPROM remains valid until updated again.



Setup menu display

Using the setup menu

Proceed as follows to use the setup menu.



Using the setup menu

1 Press the SETUP (ENTRY + EDIT) button.
The unit enters setup mode. The item number, abbreviated title, and value of the most recently changed item are displayed in the time counters of players 1 and 2 and the recorder.

2 Rotate the player search dial until the player time counters display the item you want to change.

3 Rotate the recorder search dial until the recorder time counter displays the value you want to set.
If the setting is different from the current setting, the time counter display flashes.

4 Press the STORE (ENTRY + REC) button.
The data is written to the unit's EEPROM.
To make further settings, return to step **2**.

5 To exit setup mode, press the SETUP (ENTRY + EDIT) button once more.

Setup menu items

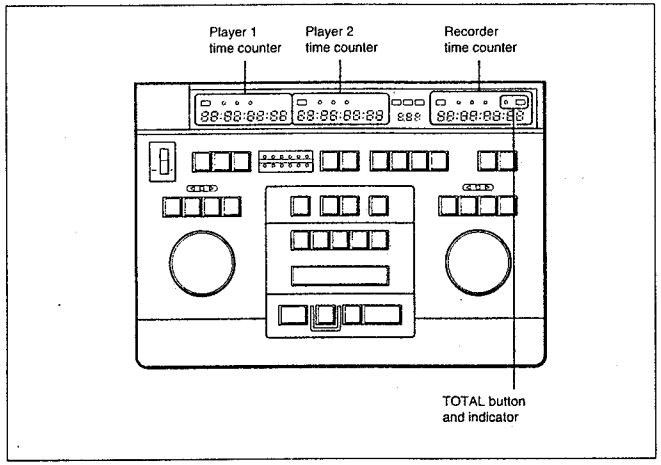
Item	Number	Abbreviated Title	Setting (factory setting underlined)
SIGNAL STANDARD VTR signal standard (NTSC or PAL/SECAM)	SEtUP-00	SignAL	30F: NTSC (30 frames) 25F: PAL/SECAM (25 frames) **Factory setting** For U.S., Canada: 30F For Europe: 25F
MAX PREROLL TIME Preroll time selected when PREROLL selector is set to 7	SEtUP-01	PrEroll	7SEC: 7 seconds 10SEC: 10 seconds
AUTO COUNTER RESET Whether or not the counter shall be reset automatically when the first edit point is entered, if the TC/RTC/CTL selector is set to RTC or CTL.	SEtUP-02	Auto Ctr	OFF: No automatic reset On: Automatic reset
TIME COUNTER RANGE The display range when the TC/RTC/CTL selector is set to RTC or CTL.	SEtUP-03	Ctr diSP	10H: From –9:59:59:29(24) to +9:59:59:29(24) 24H: From 00:00:00:00 to 23:59:59:29(24) (Values in parentheses for PAL/SECAM)
KEY & EDIT POINT BEEP Whether or not to beep after a valid key press, and when passing an edit point in preview or automatic editing.	SEtUP-04	bEEP	OFF: No beep On: Beep
AUTO EDIT POINT ENTRY In automatic editing, whether or not the OUT point of the previous edit is automatically set as IN point of the next edit.	SEtUP-05	Auto Ent	OFF: No automatic edit points rEC: Automatic edit points for recorder only ALL: Automatic edit points for all VTRs
GPI OUT REFERENCE Whether GPI trigger signals shall be output at the effect transition start point (A/B roll editing only), at the recorder IN point, or at the preroll point.	SEtUP-06	GPI rEF	EFF in: Effect start point rEC in: Recorder IN point PrEroll in: Preroll point
GPI OUT POSITION Number of frames by which the actual GPI output shall be offset from the GPI output reference point. However, this item is ignored if the preroll point was chosen as the GPI output reference point.	SEtUP-07	GPI POSI	–60F/···/0F/···/60F: Number of frames, in range from –60 to +60
GPI PULSE WIDTH GPI pulse width (unit: frames). Choose SUStAin to output pulses until the end of an automatic edit.	SEtUP-08	GPI PULS	SUStAin: Until end of automatic edit. 1F/2F/···/10F: Number of frames, range from 1 to 10.
EDIT WITHOUT SERVO-LOCK Whether or not to abort the edit if servo-lock fails.	SEtUP-09	S-LO Edt	On: Abort edit. OFF: Do not abort edit.
EDIT WITHOUT SYNCHRONIZATION When the SYNCHRO selector is set to ON or ON/CF, whether or not to abort the edit if synchronization at +/– 0 frames fails.	SEtUP-10	Sync Edt	On: Abort edit. OFF: Do not abort edit.

Item	Number	Abbrevi-ated Title	Setting (factory setting underlined)
EDIT DELAY The recorder edit delay, or number of frames from the time when the editor issues a command until the time when the recorder begins recording. Correct the command timing as necessary. When editing in modes other than Auto, experiment and select the correct timing.	SEtUP-11	Ed dELAy	Auto: Adjusted automatically for the VTR device type[a]. For devices not registered with this unit, the default value is three frames. 1F/2F/···/9F: Number of frames, in range 1 to 9 *You can display the VTR device type. For more information, see "To display the VTR device type" (page 3-13(E)).*
RECORDER START DELAY Whether the recorder start delay shall be the value registered for the VTR type, or the value returned by the learn function. *You can confirm whether or not a start delay value has been learned. See "To display the VTR device type" (page 3-13(E)).*	SEtUP-12	r dELAy	Auto: The registered value LEArn: The learned value However, the default value of five frames is used when • the VTR type cannot be determined with this item set to Auto. • no value has been learned with this item set to LEArn.
PLAYER 1 START DELAY Whether the start delay for player 1 shall be the value registered for the VTR type, or the value returned by the learn function.	SEtUP-13	P1 dELAy	Auto: The registered value LEArn: The learned value However, the default value of five frames is used when • the VTR type cannot be determined with this item set to Auto. • no value has been learned with this item set to LEArn.
PLAYER 2 START DELAY Whether the start delay for player 2 shall be the value registered for the VTR type, or the value returned by the learn function.	SEtUP-14	P2 dELAy	Auto: The registered value LEArn: The learned value However, the default value of five frames is used when • the VTR type cannot be determined with this item set to Auto. • no value has been learned with this item set to LEArn.
RECORDER SYNCHRONIZATION Whether to synchronize the recorder or not. **Note** Set to OFF when using a VTR which does not support synchronization.	SEtUP-15	rEC Sync	On: Synchronize during cut edits, and in A/B roll editing if the FROM source is a VTR. However, do not synchronize in DT mode. OFF: Do not synchronize.
PLAYER 1 SYNCHRONIZATION Whether to synchronize player 1 or not. **Note** Set to OFF when using a VTR which does not support synchronization.	SEtUP-16	P1 Sync	On: Synchronize when player 1 is the TO VTR, or when in DT mode. OFF: Do not synchronize.
PLAYER 2 SYNCHRONIZATION Whether to synchronize player 2 or not. **Note** Set to OFF when using a VTR which does not support synchronization.	SEtUP-17	P2 Sync	On: Synchronize when player 2 is the TO VTR, or when in DT mode. OFF: Do not synchronize.

a) A code identifying the VTR type.

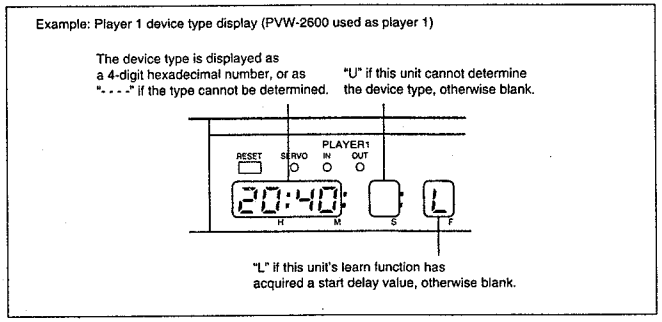
Item	Number	Abbrevi-ated Title	Setting (factory setting underlined)
PLAYER 1 MAX DT SPEED Maximum DT playback speed of player 1.	SEtUP-18	P1 SPEEd	2: 2 times normal speed. 3: 3 times normal speed.
PLAYER 2 MAX DT SPEED Maximum DT playback speed of player 2.	SEtUP-19	P2 SPEEd	2: 2 times normal speed. 3: 3 times normal speed.
SWITCHER TYPE Select the type of your switcher.	SEtUP-20	S tyPE	500: DFS-500 series 3000: BVS-3000 series 1100A: BVS-1100A G100: GVG 100 1201: BVS-V1201, BVS-A1201
AUTO SNAPSHOT When using a DFS-500, whether or not to control snapshots automatically. Ignored unless SEtUP-25 (EDL MODE) is set to On. *For more information about the snapshot control, see "Controlling the DFS-500 Snapshot Function" (page 6-2(E))*	SEtUP-21	Auto SnP	OFF: No automatic control. On: Automatic control.
AUX 3 SWITCHER CROSSPOINT The crosspoint for the video switcher corresponding to the AUX3 (ENTRY + FROM TO) button in the source selection section.	SEtUP-22	AU3 S CP	0/1/2/···/99: Crosspoint, in range from 0 to 99. However, always 5 when using the BVS-V1201 or BVS-A1201, regardless of the setting of this item.
AUX 3 MIXER CROSSPOINT The crosspoint for the audio mixer corresonding to the AUX3 (ENTRY + FROM TO) button in the source selection section.	SEtUP-23	AU3 A CP	0/1/2/···/99: Crosspoint, in range from 0 to 99. However, disabled when using a mixer with a parallel interface.
USE EXT MON Whether to forcibly set the audio mixer's EXT MON to ON. **Note** When using the VSP-A600, the EXT MON connector ON/OFF switch cannot be set from the control panel. Therefore, set this item to On when monitoring recorder output through the EXT MON connector.	SEtUP-24	A600 USE	OFF: Do not set to ON. On: Set to ON.
EDL MODE Whether or not to save the EDL in internal memory (internal EDL mode).	SEtUP-25	EdL Cont	OFF: Use external EDL mode. On: Use internal EDL mode.
AUTO EDL CLEAR In internal EDL mode, whether or not data can be overwritten when the EDL becomes full (when edit 00 is saved). Overwriting begins by clearing the first edit (01), and continues from there toward the end of the list.	SEtUP-26	Auto Clr	OFF: Disable overwriting. On: Enable overwriting.
TIMECODE PRESET Preset value of the recorder's time code generator (hours digits).	SEtUP-27	tc PrSEt	00H/01H/···/23H: Hour from 00 to 23.
TIMECODE FRAME MODE (for NTSC only) Frame mode of the recorder's time code generator.	SEtUP-28	tc droP	ndF: Non-drop frame mode. dF: Drop frame mode.

To display the VTR device type



To display the VTR device type

In setup mode, press the TOTAL button, lighting the TOTAL indicator.
The following information is displayed in the time counters of player 1, player 2, and the recorder.

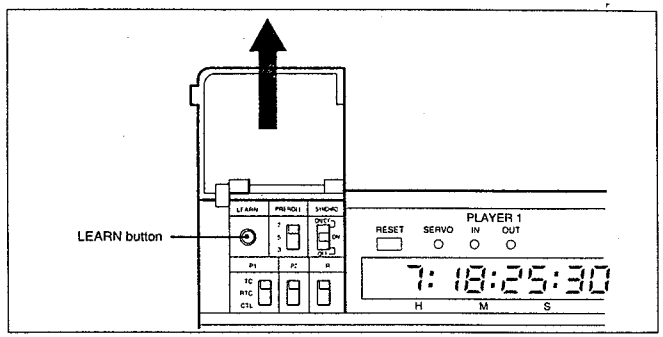


VTR device type display

Measuring Start Delays

The amount of time which a VTR needs to achieve stable tape movement after receiving a start command is called the start delay. For precise synchronization between VTRs, you need to measure the start delay of each connected VTR. However, you do not need measure the start delays if the unit is able to determine the type of your VTRs, and if you have selected Auto under setup menus items 12, 13 and 14 (RECORDER START DELAY, PLAYER 1 START DELAY and PLAYER 2 START DELAY).

To measure start delays



To measure start delays

Insert a tape into each VTR and press the LEARN button.
The tapes begin to run, and the unit measures the start delays. This information is saved in the unit's internal memory. It remains available for at least 100 hours after the unit's power is turned off (provided that the unit has been powered on for at least two hours).

Note

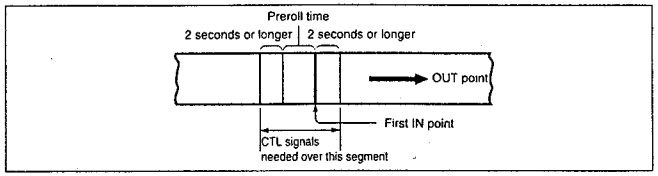
When VTR connections are changed, or when the previously measured start delay data has been lost, measure the start delays again.

Preparing Tapes for Editing

Preparing tapes for recording

To prepare a master tape to record the results of an edit, use a video camera or reference signal generator to input color bars or black burst signals to a VTR which records them on the tape. The recording procedure differs according to the type of edit which you want to perform. As explained below, there are two kinds of edit: assemble editing and insert editing.

- **Simultaneous, sequential recording of all audio and video signals (assemble editing):**
  To prepare a master tape for assemble editing, record CTL signals over at least the segment of the tape shown below.



Master tape for assemble editing

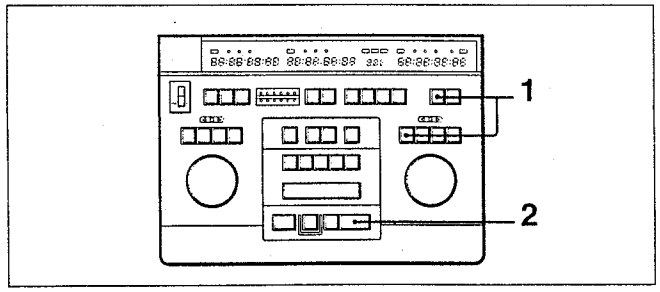
- **Simultaneous or separate insertion of selected audio and video signals (insert editing):**
  To prepare a master tape for insert editing, record CTL signals along the entire length of the tape.

For either assemble or insert editing, you will also need to record time code signals if you want to locate positions on the tape by means of time codes (time code editing).

For more information about insert and assemble editing, see "Assemble editing and insert editing" (page 4-3(E)).

To record CTL and time code signals on a blank tape

Insert a blank tape in the recorder beforehand. In this case, use the recorder's initial time code setting.



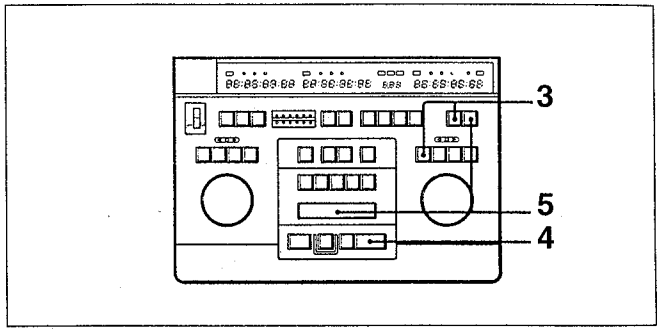
To record CTL and time code signals on a blank tape

1 Press the REC button together with the PLAY button in the recorder operation control section.
Recording starts.

2 To stop the recording, press the ALL STOP button.

To record time code signals on a blank tape after setting the initial time code with this unit

Insert a blank tape in the recorder beforehand.



To record time code signals on a blank tape after setting initial time code on this unit

1 Use the setup menu (*page 3-8(E)*) to set the initial time code. Select setup menu item SEtUP-27 (abbreviation: tc PrSEt), and rotate the recorder search dial to set the time code.
After setting the time code, do not exit the setup menu.

2 Select setup menu item SEtUP-28 (abbreviation: tc droP) to select drop frame mode or non-drop frame mode.
Do not exit the setup menu.

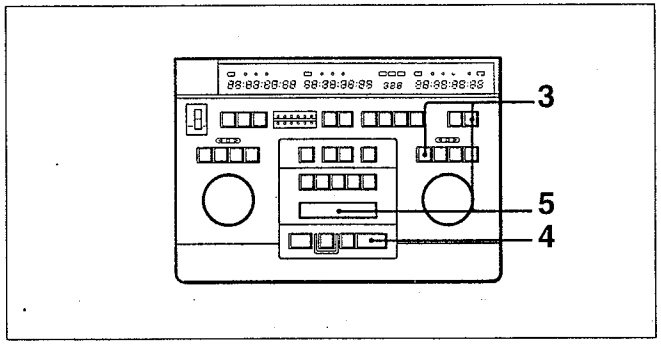
3 While still in the setup menu, press the REC button together with the PLAY button in the recorder operation control section.
Recording begins with a time code approximately 20 seconds before the initial time code selected in step **2**.

4 To stop the recording, press the ALL STOP button.

5 After you have finished recording, press the SETUP (ENTRY + EDIT) button to exit the setup menu.

To record new time codes on a recorded tape in insert mode

Time codes must be recorded continuously on tapes used in time code editing. If you want to record new time codes on a tape which already contains audio or visual program materials.
Insert the tape in the recorder and proceed as follows. For this operation, it makes no difference whether the edit mode is set to insert or assemble.



To record new time codes on a recorded tape in insert mode

1 Use the setup menu (*page 3-8(E)*) to set the initial time code. Select setup menu item SEtUP-27 (abbreviation: tc PrSEt), and rotate the recorder search dial to set the time code.
After setting the time code, do not exit the setup menu.

2 Select setup menu item SEtUP-28 (abbreviation: tc droP) to select drop frame mode or non-drop frame mode.
Do not exit the setup menu.

3 While still in the setup menu, press the EDIT button together with the PLAY button in the recorder operation control section.
Recording begins with a time code approximately 20 seconds before the initial time code selected in step **2**.

4 To stop the recording, press the ALL STOP button.

5 After you have finished recording, press the SETUP (ENTRY + EDIT) button to exit the setup menu.

Note

If the recorder and player tapes have different formats, and you want to record time code signals on the player tape in insert mode, temporarily connect the player VTR to the RECORDER connector.

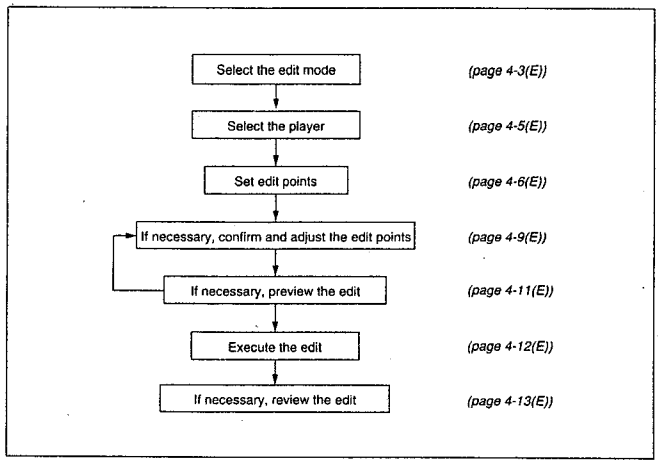
Chapter 4
Basic Editing — Cut Edits

This chapter explains how to perform basic cut edits, using one player and one recorder, for instantaneous switching between program sources.

Standard Editing Session ..... **4-2 (E)**
Selecting the Edit Mode ..... **4-3 (E)**
Selecting the Player ..... **4-5 (E)**
Setting Edit Points ..... **4-6 (E)**
Confirming and Adjusting Edit Points ..... **4-9 (E)**
Previewing the Edit ..... **4-11 (E)**
Executing the Edit ..... **4-12 (E)**
Reviewing the Edit ..... **4-13 (E)**

Standard Editing Session

The following diagram illustrates the flow of a standard editing session using this unit.



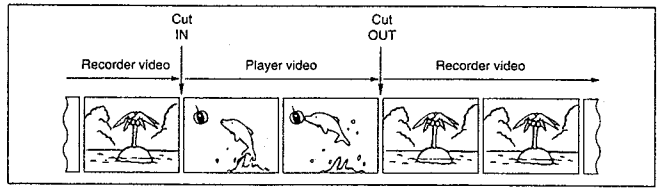
Standard editing session

This chapter will explain how to perform cut edits using one player and one recorder.

For instructions on how to perform A/B roll editing using two players, see Chapter 5 "Editing with Two Players — A/B Roll Edits."

What is cut editing?

Cut editing is a technique for switching instantaneously from one scene to another.



Cut editing

In assemble mode, audio and video signals are switched at the same time. In insert mode, you can switch audio and video separately.

For more information about the insert and assemble modes, see "Assemble editing and insert editing" (page 4-3(E)).

Selecting the Edit Mode

Select assemble mode or insert mode.

Assemble editing and insert editing

What is assemble editing?

Assemble editing is a technique for simultaneous, sequential recording of video, audio (channels 1 and 2), time code and control signals on a master tape. It is a convenient way to record scenes one after the other on a new tape.

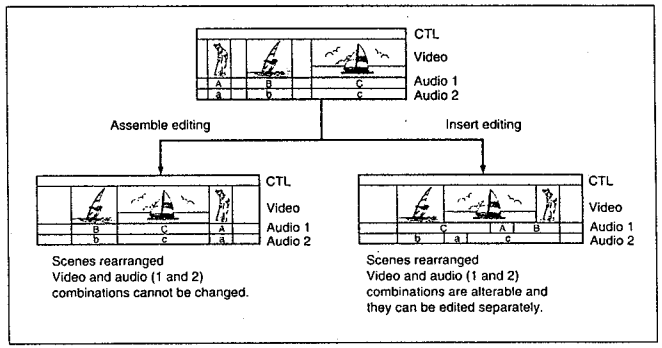
Note

If you begin an assemble edit at a point midway through an already recorded tape, data will be erased across the entire width of the tape a few seconds after the recorder's OUT point. Video and audio signals recorded in this section will be lost, causing picture break up. If you wish to avoid this, use insert editing instead of assemble editing.

What is insert editing?

Insert editing is a technique for inserting video, audio (channels 1 and 2), time code and control signals into a master tape, either together or separately. It assumes that you have already recorded control or time code signals across the entire length of the tape. Use insert editing when you want to:

- add music or narration to an edited video program.
- add video to an edited audio program.
- take a tape recorded in assemble mode and replace certain scenes with new ones. In insert mode, you can insert new scenes without causing picture break up after the recorder OUT point.

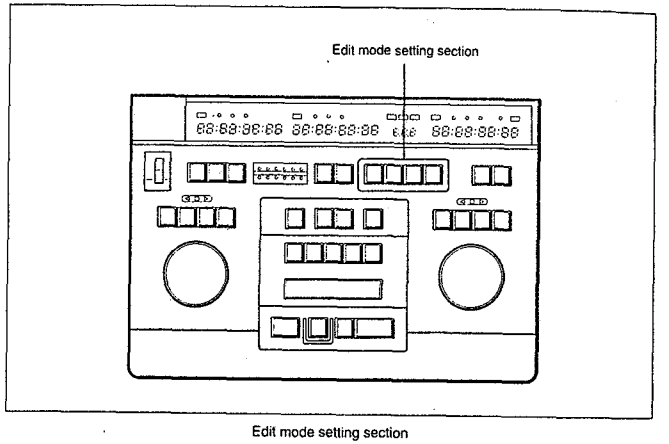


Assemble and insert editing

Selecting the Edit Mode

To select the edit mode

Select the edit mode using the buttons in the edit mode setting section.



Edit mode setting section

To select assemble mode

Press the ASMBL button. The button lights.
If any of the insert mode buttons (V, A1, A2) are lit, press them so that they go out before pressing the ASMBL button.

To select insert mode

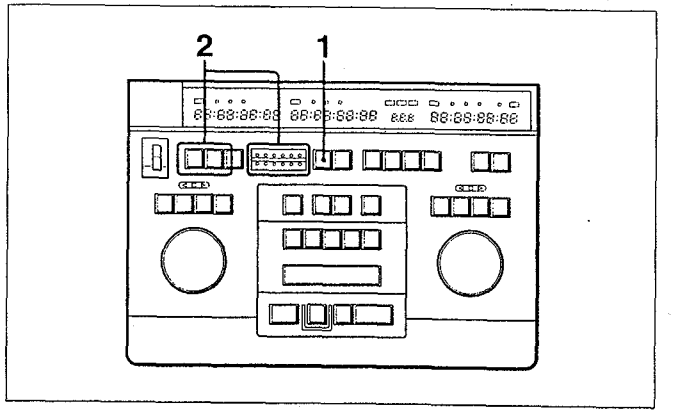
Press one or more of the video (V), audio 1 (A1) and audio 2 (A2) buttons, depending on the signals you want to insert. The buttons light. If the ASMBL button is lit, press it so that it goes out before pressing the insert mode button.

Selecting the Player

Select the VTR connected to the PLAYER 1 or PLAYER 2 connector (P1 or P2) as the player.

To select the player

Proceed as follows to select the player.



Selecting the player

1 Verify that the A/B button is out.

If the A/B button is lit or flashing.
If lit, press it once. If flashing, press it twice. The button goes out.

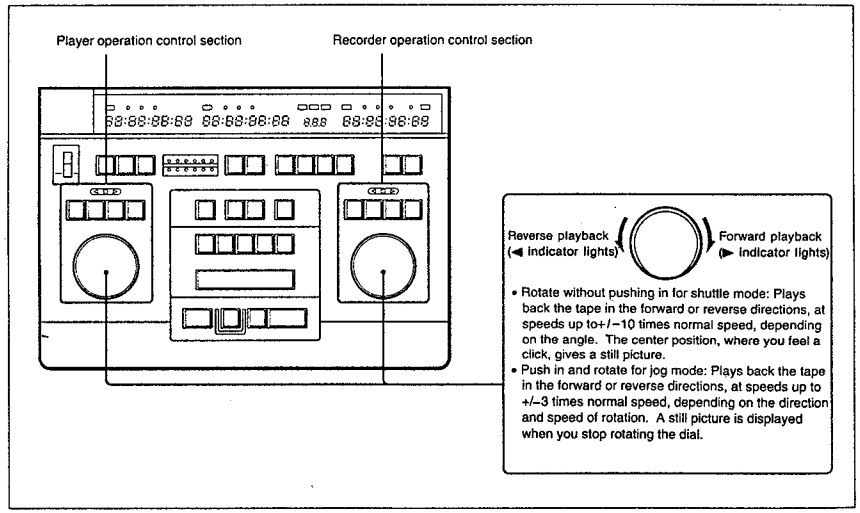
2 Press the P1 or P2 button to select the VTR connected to the PLAYER 1 or PLAYER 2 connector.
The button lights. In addition, the red P1 or P2 indicator lights in the FROM row of the FROM TO indicators.

Setting Edit Points

Set the IN and OUT points for the recorder and player. When you execute a cut edit, playback between the player's IN and OUT points is recorded between the recorder's IN and OUT points. To set an edit point, search for the desired scene while viewing player or recorder playback on the monitor. At the desired scene, stop the playback and set the IN point to the tape position shown in the time counter.

Searching for a scene on the tape

While viewing player or recorder playback on the monitor, use the search dials and the buttons in the player and recorder operation control sections to search for the desired scene. They control VTR tape movement remotely, just like VTR's own controls (*see Chapter 2 "Names and Functions of Parts"*).


Player operation control section
Recorder operation control section
Reverse playback (◀ indicator lights)
Forward playback (▶ indicator lights)
• Rotate without pushing in for shuttle mode: Plays back the tape in the forward or reverse directions, at speeds up to+/−10 times normal speed, depending on the angle. The center position, where you feel a click, gives a still picture.
• Push in and rotate for jog mode: Plays back the tape in the forward or reverse directions, at speeds up to +/−3 times normal speed, depending on the direction and speed of rotation. A still picture is displayed when you stop rotating the dial.

Player and recorder operation control sections

Note

The range of search dial playback speeds may differ for some VTRs.

To view a still picture at the desired scene

During normal playback: Press the STILL button.

During shuttle mode playback: Return the search dial to the center position where it clicks.

During jog mode playback: Stop rotating the search dial.

If still playback continues beyond a certain time

The connected VTR may automatically cancel still playback. To resume still playback, press the STILL button on this unit.

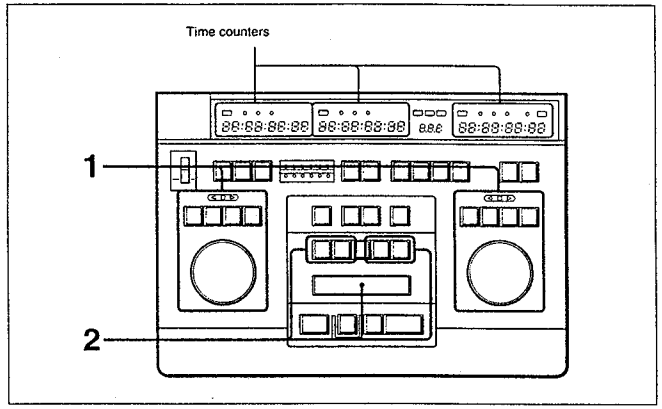
To set an edit point

In cut editing, player duration is the same as recorder duration. So as soon as you set three edit points, the unit automatically sets the remaining fourth edit point.

Note

If you set all four edit points yourself, and the player's duration does not match the recorder's duration, the recorder's OUT point is given priority, and the player's OUT point is ignored.

Proceed as follows to set an edit point.



To set an edit point

1 Find the desired scene while viewing the playback of the player or recorder.

2 When you find the scene, press the ENTRY button at the same time as the IN or OUT button which corresponds to the edit point you want to set (see chart below).

- It makes no difference whether you press the ENTRY button first or the IN/OUT button first, as long as you hold both down together.
- You can set player and recorder edit points at the same time by pressing the ENTRY and IN/OUT buttons for both player and recorder.

Edit point	Button
Player IN point	Player IN button
Player OUT point	Player OUT button
Recorder IN point	Recorder IN button
Recorder OUT point	Recorder OUT button

Above the player or recorder time counter, the IN or OUT indicator corresponding to the edit point lights. If there are any edit points remaining to be set, the indicators for those points begin to flash.

3 Repeat steps **1** and **2** until you have set the necessary three out of four edit points for the player and recorder.

When you set the third edit point

The PREVIEW and AUTO EDIT buttons begin to flash, to inform you that it is now possible to conduct a preview or execute the edit.

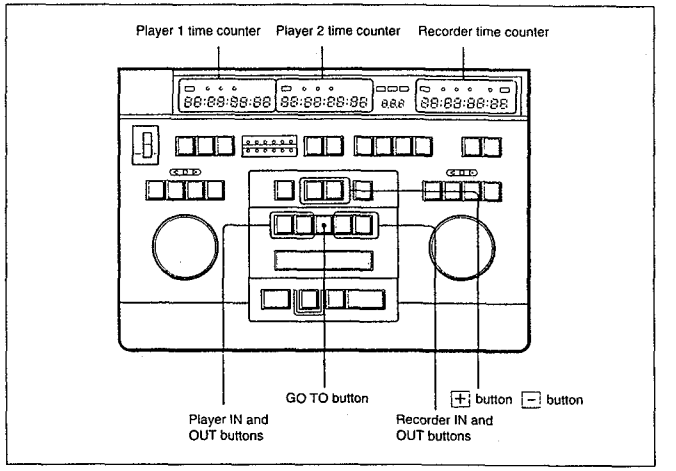
For more information about previews, see "Previewing the Edit" (page 4-11(E)). For more information about execution, see "Executing the Edit" (page 4-12(E)).

If the edit mode buttons begin to flash

If you set an edit point without first selecting an edit mode, all of the edit mode buttons begin to flash. Refer to "Selecting the Edit Mode" (*page 4-3(E)*), and set the edit mode.

Confirming and Adjusting Edit Points

This section explains how to confirm and adjust edit points, and how to confirm the duration.
The following illustration shows the controls used to confirm and adjust edit points.



Controls used to confirm and adjust edit points

To confirm an edit point

Press the IN/OUT button corresponding to the edit point you want to confirm (*see chart below*). You can confirm player and recorder edit points at the same time by pressing more than one button.

Edit point	Button
Player IN point	Player IN button
Player OUT point	Player OUT button
Recorder IN point	Recorder IN button
Recorder OUT point	Recorder OUT button

As long as you hold the button down, the edit point is displayed in the player or recorder time counter. Edit points which have been set automatically are displayed in the same way, but the display flashes. During this time, the corresponding IN or OUT indicator flashes at high speed.

Confirming and Adjusting Edit Points

To view an edit point scene

While pressing the GO TO button, press the IN/OUT button corresponding to the scene you want to view.
The tape moves to that scene and a still picture is displayed.
It makes no difference whether you press the GO TO button first or the IN/OUT button first, as long as you hold both down together.
You can also view player and recorder edit points at the same time, by holding down the appropriate buttons.

To confirm duration

Press the player IN and OUT buttons together, or the recorder IN and OUT buttons.
As long as you hold the buttons down, the duration is displayed in the player or recorder time counter. If an edit point has been set automatically, the display flashes. During this time, the corresponding IN or OUT indicators flash at high speed.
Hold down the buttons for all four edit points to confirm player and recorder duration at the same time.

To adjust edit points by one frame at a time

Press the IN or OUT button for the edit point you want to adjust. While holding it down, press the ⊞ button to move the edit point one frame forward, or the ⊟ button to move it one frame backward.
It makes no difference whether you press the IN/OUT button first or the ⊞ / ⊟ button first, as long as you hold both down together.
You can also adjust player and recorder edit points at the same time, by pressing the appropriate buttons.

To adjust edit points continuously

Hold the IN/OUT and ⊞ / ⊟ buttons down.

To move an edit segment by moving both the IN and OUT points

While holding down both the IN and OUT buttons, press one of the ⊞ / ⊟ buttons.

To delete edit points

While pressing the IN/OUT button for the edit point to be deleted, press the RESET button above the corresponding time counter.

To delete both the IN and OUT points

Press the RESET button above the corresponding time counter.

Note

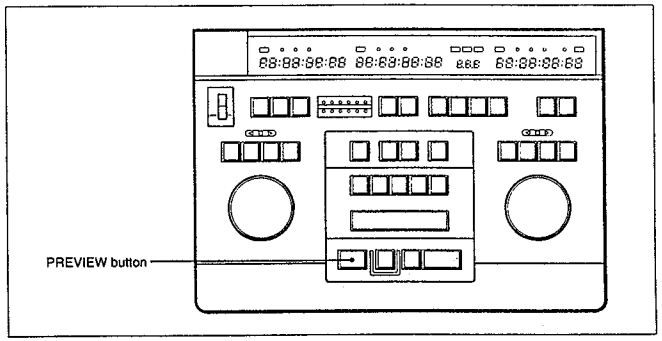
If the TC/RTC/CTL selector is set to RTC or CTL, pressing the RESET button normally resets the time counter. To delete both the IN and OUT points without resetting the time counter, hold both the IN and OUT buttons down while you press the RESET button.

Previewing the Edit

The preview function allows you to conduct a rehearsal before executing the edit. In a preview, the player and recorder run exactly as they do during edit execution, and the results are displayed on the monitor, but the edit is not recorded. If a preview is not needed, you can skip this step and proceed directly to edit execution.

To execute a preview

Press the PREVIEW button.



PREVIEW button

When you execute a preview

- From the preroll point to the IN point, and from the OUT point to the postroll point (about two seconds past the OUT point), recorder playback is displayed.
- The player and recorder stop at the postroll point.

To restart the preview being executed

Press the PREVIEW button again.

To move the OUT point backward during the preview

When you reach the scene where you wish to set the new OUT point, press the recorder OUT button while holding down the ENTRY button.
The point where you pressed the button is set as the new OUT point for both player and recorder. The preview ends.

To interrupt a preview and execute an automatic edit

Press the AUTO EDIT button.

To stop a preview

Press the ALL STOP button.

To recall the contents of the previous preview

Press the LAST EDIT button.
Each time you press the button, the current preview is replaced by the previous preview, or vice versa.

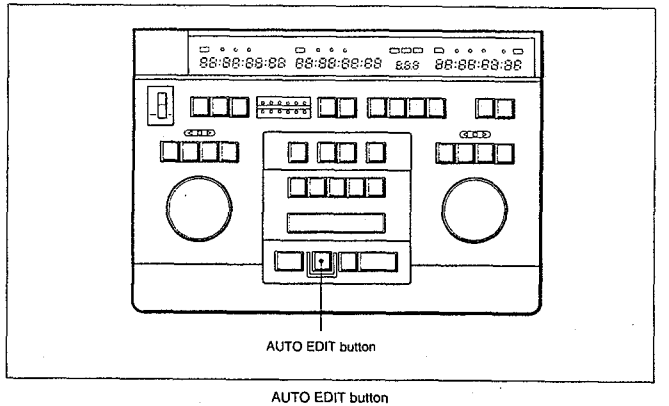
For more information about this function, see "Recalling the previous previews — the last edit buffer" (page 7-4(E)).

Executing the Edit

After you have finished making the necessary settings, you can execute the edit automatically.

To execute the edit

Press the AUTO EDIT button.



AUTO EDIT button

When you execute an edit

- The recorder runs to the postroll point, about two seconds past the OUT point, then rewinds to the OUT point and stops.
- The RVW/JUMP button starts flashing, to inform you that you can now conduct a review.

For more information about reviews, see "Reviewing the Edit" (page 4-13(E)).

To move the OUT point backward during the edit

When you reach the scene where you wish to set the new OUT point, press the AUTO EDIT button again, or press the recorder OUT button while holding down the ENTRY button.
The point where you pressed the button is set as the new OUT point for both player and recorder. The edit ends.

To stop an edit

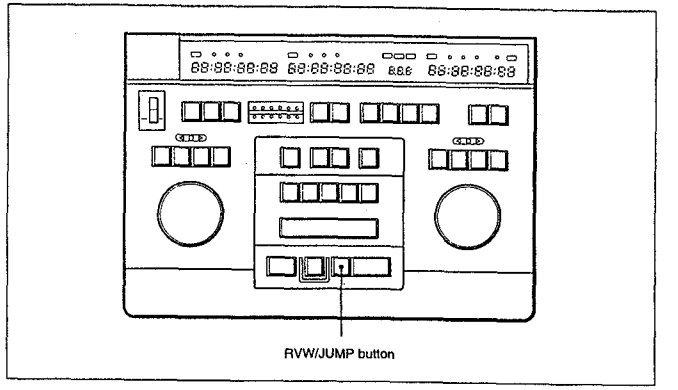
Press the ALL STOP button.

Reviewing the Edit

If necessary, you can review the edit by viewing the recorded results on the monitor.

To review the edit

After executing the edit, press the flashing RVW/JUMP button.



RVW/JUMP button

The recorder plays back the edit from the preroll point to the postroll point (about two seconds past the OUT point).
After the review, the recorder rewinds to the OUT point and stops.
If you set an edit point for the next edit, the RVW/JUMP button stops flashing.

To jump to the vicinity of the OUT point during a review

After passing the IN point, press the RVW/JUMP button once more.
The tape plays in fast forward mode to a point about five seconds before the OUT point, then returns to normal playback. The review continues up to the postroll point.

Note

The jump function is not available when:
- the tape has already played to a point within five seconds of the OUT point.
- the duration is less than 10 seconds.

To stop a review

Press the ALL STOP button.

Chapter 5
Editing with Two Players — A/B Roll Edits

Editing the signals of two players is called A/B roll editing. This chapter will explain how to perform A/B roll editing using switchers and mixers connected to this unit.

The explanation assumes that you already know how to operate your video switcher and/or audio mixer, and that you are familiar with this unit's basic operating procedures. The diagram "A/B roll editing session" of this chapter (*page 5-3(E)*) provides references to Chapter 4 "Basic Editing — Cut Edits" in case you wish to review steps ommitted from the explanation.

For information about how to operate the switcher or mixer connected to this unit, please refer to the manual supplied with the equipment.

Outline ..... **5-2 (E)**
Selecting FROM and TO Sources ..... **5-4 (E)**
Setting Edit Points ..... **5-6 (E)**
Setting a Transition Time ..... **5-7 (E)**

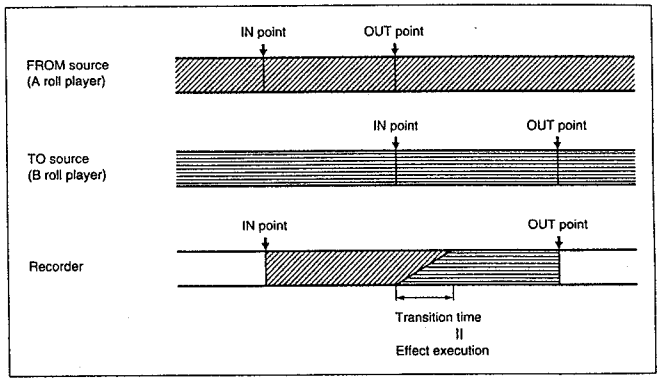
Outline

If you connect a video switcher such as the DFS-500 to this unit, you will be able to take advantage of special effects such as wipes and dissolves in A/B roll editing.

For more information about the special effects supported by your switcher, please refer to its operation manual.

Basic A/B roll editing

The basic operation in A/B roll editing is a switch from FROM source playback to TO source playback, using an effect which continues for a specified transition time.



Basic A/B roll editing

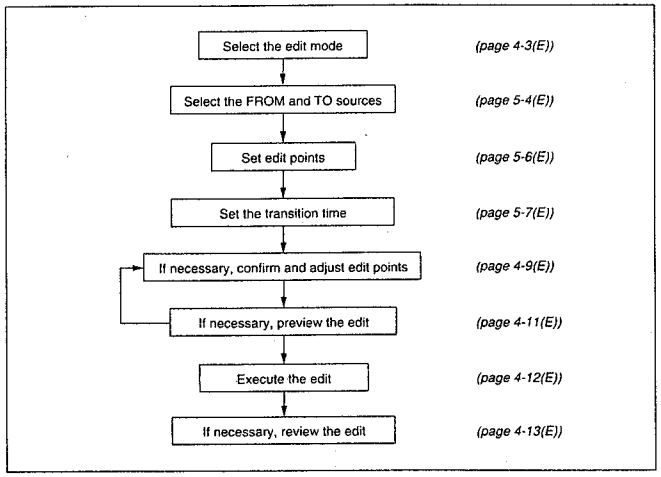
When conducting an A/B roll edit with this unit and a connected switcher, set the edit mode, edit sources (players), edit points, and transition time using this unit. Select the effect type using the switcher.

A/B roll editing session

A/B roll editing differs from cut editing with respect to the following points:
- Two players (the FROM and TO sources) are specified.
- Edit points are set separately for the two players.
- An effect transition time is set.

In other respects, A/B roll editing uses the same basic procedures as cut editing.

The following diagram illustrates the flow of an A/B roll editing session.



A/B roll editing session

Confirm special effects before execution

Confirm that necessary settings, including effect selection, have been made correctly on the switcher or mixer side before executing a preview or an edit.

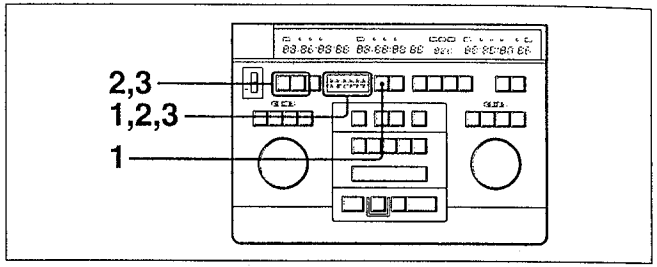
Note on references to Chapter 4

For steps in the above diagram which refer to Chapter 4, note that A/B roll editing differs from cut editing in the following ways.

- Confirming and adjusting edit points
  Before adjusting or confirming player edit points, it is necessary to select the FROM or TO source by pressing the P1 or P2 button. The button lights to indicate the selected source.
- Moving an OUT point during a preview
  If you wish to move an OUT point backward during a preview, wait until after the transition. Then, when the player reaches the desired scene, press the recorder OUT button while holding down the ENTRY button.
- Moving an OUT point during an edit
  If you wish to move an OUT point backward during an edit, wait until after the transition. Then, when the player reaches the desired scene, press the AUTO EDIT button or press the recorder OUT button while holding down the ENTRY button.

Selecting FROM and TO Sources

Proceed as follows to select the FROM and TO sources.



Selecting FROM and TO sources

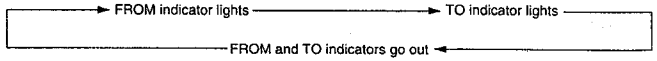
1 Press the A/B button.
The button lights. If it flashing, it stops flashing and lights.
The green indicator in the FROM row of the FROM TO section lights.

2 Press the P1 or P2 button to select the FROM source.
- The button lights. At the same time, the red P1 or P2 indicator in the FROM row lights.
- The green FROM indicator goes out, and the green TO indicator lights.

3 Select the TO source by pressing the P1 or P2 button, whichever is not lit.
- The button lights. At the same time, the red P1 or P2 indicator in the TO row lights.
- The green TO indicator goes out. Both of the green indicators are now out.

How the FROM and TO indicators change

The green FROM and TO indicators change in the following order each time you press the FROM TO button. The green FROM and TO indicators are never lit at the same time.



Note

Except while you are selecting FROM and TO sources, make sure that the green FROM and TO indicators are not lit. The lighted state means that FROM or TO sources can be changed, which can lead to errors.

To change the FROM or TO source

1 To change the FROM source, press the FROM TO button, lighting the green FROM indicator.
To change the TO source, press the FROM TO button again, lighting the green TO indicator.

2 Press the P1 or P2 button to select the player.

Setting Edit Points

You can set IN and OUT points for the FROM source, the TO source, and the recorder in any order you like. As soon as you set the fifth edit point, the unit automatically sets the sixth.

To set an edit point

Set edit points just as you would for a cut edit, except that when setting player edit points you need to press the P1 or P2 buttons to select the FROM or TO source.

For more information about setting player and recorder edit points, see "Setting Edit Points" (page 4-6(E)) in Chapter 4.

As soon as you have set five out of the necessary six edit points, the PREVIEW and AUTO EDIT buttons begin to flash, to inform you that it is now possible to conduct a preview or execute the edit.

Note

If you set all six edit points yourself, and the sum of the TO and FROM durations does not match the recorder's duration, then the recorder's OUT point is given priority, and the TO source's OUT point is ignored.

If you do not set an OUT point for the FROM source

Until you execute an edit or preview, the edit point displayed in the FROM source time counter will be an automatically calculated value. When you execute the preview or edit, the unit automatically sets the value of the FROM source IN point as the OUT point, and the effect begins immediately from the FROM source IN point.

Setting a Transition Time

Select the transition time, as the number of frames from the point where a connected switcher begins to execute a special effect to the point where the special effect ends. When the effect is executed, the audio and video playback of the FROM source will be gradually replaced by the audio and video playback of the TO source.

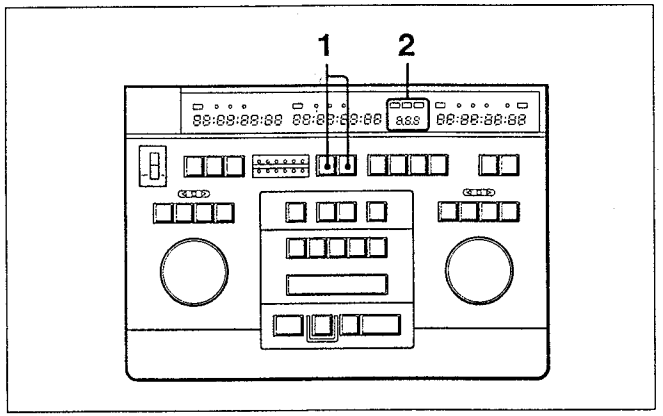
Relation between frame count and real time

- NTSC: 29.97 frames per second
- PAL/SECAM: 25 frames per second

The maximum transition time which may be set with this unit is 999 frames.

To set the transition time

Proceed as follows.



To set the transition time

1 Verify that the A/B button is lit, then press the TRANS button. If the TRANS button is flashing, press it so that it lights.

2 The transition time is displayed in the EDIT NO./TRANS/DUR display. Use the three EDIT NO./TRANS/DUR buttons to enter the desired number of frames.

Chapter 6
Advanced Editing

This chapter explains advanced techniques not covered in previous chapters.

Controlling the DFS-500 Snapshot Function ..... **6-2 (E)**
Previewing Immediately After Setting IN Points
— Quick Editing ..... **6-3 (E)**
Resuming Edit After Setting Player IN Point
— Butt Editing ..... **6-4 (E)**
Using Auxiliary Sources ..... **6-5 (E)**
Setting Separate Audio and Video IN Points
— Split Editing ..... **6-7 (E)**
Editing Still and Variable-Speed Playback
— DT Editing ..... **6-9 (E)**
Setting Transition Points During Preview or Edits
— SYNC Roll Editing ..... **6-12 (E)**
Controlling External Equipment via
the GPI Interface ..... **6-13 (E)**
Manual Editing ..... **6-14 (E)**

Controlling the DFS-500 Snapshot Function

If you have connected a DFS-500 DME switcher, and are editing in internal EDL mode, you can link snapshots of the DFS-500 control panel to edits stored in this unit's EDL. Each time you register an edit in the EDL, the DFS-500 saves a snapshot of its control panel. Later, when you recall the edit from the EDL, the DFS-500 automatically restores the state of its control panel.

See page 7-3(E) for more information about internal EDL mode, and page 7-2(E) for more information about edits.

To Control the DFS-500 snapshot function

Set setup menu item 21 (AUTO SNAPSHOT) to On.
The unit will automatically link EDL edits and DFS-500 snapshots, in the following way.

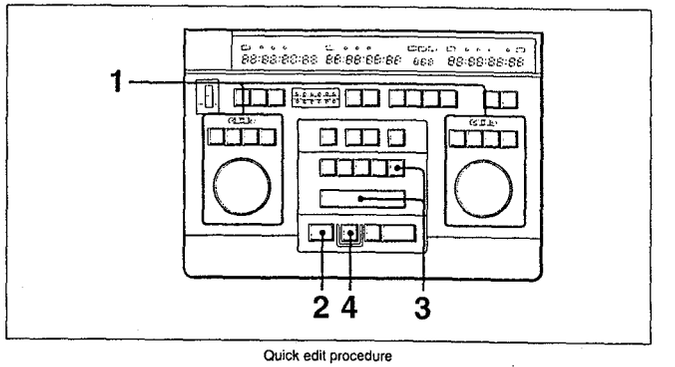
- Whenever you register an edit in the EDL, the DFS-500 registers a snapshot using the edit number.
- When you recall the edit from the EDL, the DFS-500 retrieves the snapshot with the same number from its snapshot register.

Previewing Immediately After Setting IN Points — Quick Editing

In cut and SYNC roll editing, you can increase your editing efficiency by choosing to preview as soon as you set IN points. Or you can skip the preview and proceed immediately to an automatic edit.
This function is not available in A/B roll editing.

For more information about SYNC roll editing, see "Setting Transition Points During Preview or Edits — SYNC Roll Editing" (page 6-12(E)).

Proceed as follows to use quick editing.



Quick edit procedure

1 Search the player and recorder tapes for the scenes where you want to set the IN points, then freeze the pictures there.

2 Press the PREVIEW button.
The still playback positions are set as the IN points for player and recorder, and a preview begins. However, if you have already set IN points, the existing IN points are not changed.

3 When you reach the scene where you want to set the OUT point, press the recorder OUT button while holding down the ENTRY button.
The recorder OUT point is set. About two seconds later, the player and the recorder stop.

4 Press the AUTO EDIT button.
An automatic edit begins.

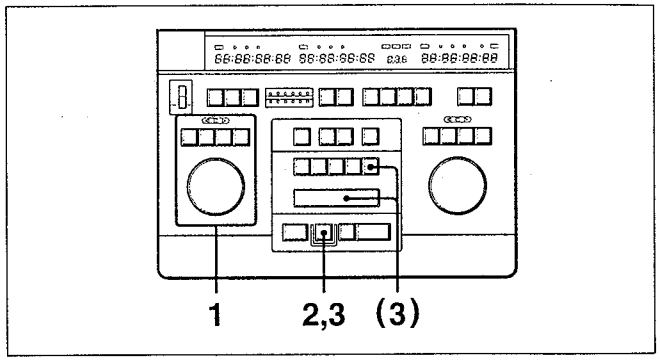
If you want to skip the preview.
In step **2**, press the AUTO EDIT button instead of the PREVIEW button.
The edit begins immediately.
When you reach the scene where you want to stop, press the AUTO EDIT button again, or press the recorder OUT button while holding down the ENTRY button.

Resuming Edit After Setting Player IN Point — Butt Editing

After an automatic edit, the recorder returns to the OUT point and stops. Therefore, in cut or SYNC roll editing, you can begin the next edit immediately, as soon as you set the player's next IN point.

Proceed as follows to conduct a butt edit.

This procedure automatically sets the recorder OUT point. If you want to set the recorder IN point for the next edit at the same time, set setup menu item 05 (AUTO EDIT POINT ENTRY) to rEC. This is convenient because it means that you do not have to worry about moving the search dial after executing the current edit.



Butt edit procedure

1 After completing an edit, search the player tape for the scene where you wish to set the next IN point. Freeze the picture there.

2 Press the AUTO EDIT button.
An automatic edit begins.

3 When you reach the scene where you want to set the OUT point, press the AUTO EDIT button again, or press the recorder OUT button while holding down the ENTRY button.
The OUT point is set and the edit ends.

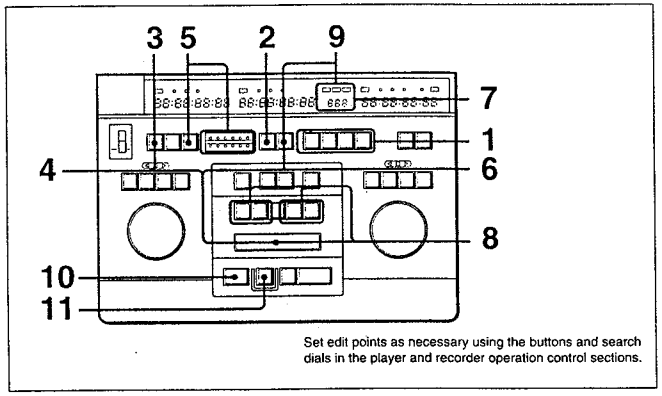
To continue with the next edit, return to step **1**.

For more information about SYNC roll editing, see "Setting Transition Points During Preview or Edits — SYNC Roll Editing" (page 6-12(E)).

Using Auxiliary Sources

In addition to the VTRs corresponding to the P1 and P2 buttons in the source selection section, you can edit using sources such as video cameras and tape recorders connected to video switchers or audio mixers.
The following example shows how to perform an A/B roll edit, in order to switch from the picture of player 1 to the picture of a video camera connected to the VIDEO INPUT 3 connector of a DFS-500 DME switcher. The input from the DFS-500 corresponds to this unit's AUX 1 (ENTRY + P1) button.

For more information about correspondences between this unit's auxiliary input selection buttons and equipment connected to the SWITCHER and MIXER connectors, see page 3-6(E).



Editing procedure using an auxiliary source

1 Select the edit mode.

2 Press the A/B button.
The button lights.

3 Press the P1 button to select player 1 as the FROM source.

4 Press the AUX1(ENTRY + P1) button to select the video camera as the TO source.

5 Press the FROM TO button to set the camera's duration.
The green TO indicator lights.

6 Press the DUR(ENTRY + TRANS) button.
The button begins to flash.

7 Using the EDIT NO./TRANS/DUR buttons, set the camera duration (maximum 999 frames).

8 Set three out of the four IN/OUT points for player and recorder.

(Continued)

9 Set the transition time.

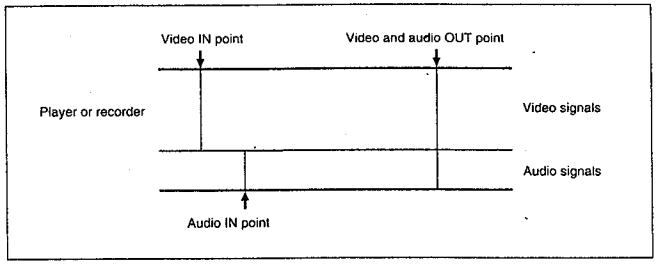
10 If necessary, conduct a preview.

11 Execute the edit.

Setting Separate Audio and Video IN Points — Split Editing

Split editing

When editing in insert mode, you can advance or delay an audio IN point with respect to the video IN point.



Split editing

Split editing restrictions

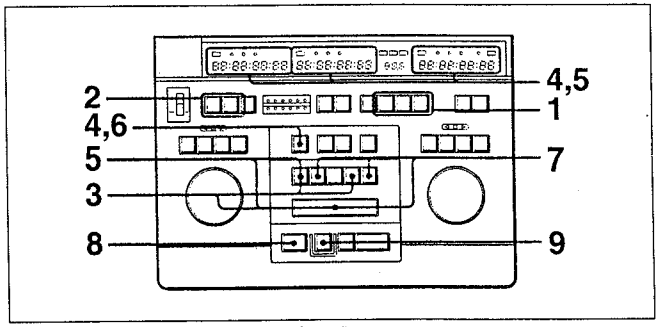
The following restriction apply during split editing:

- Split IN points cannot be set separately for audio channel 1 and audio channel 2.
- Split IN points can be set for the player audio or the recorder audio, but not for both. If you set split audio IN points for the player as well as for the recorder, the IN point set last is given priority.
- Split IN points cannot be used in DT editing. If you set an initial DT playback speed for a player, and then set an split audio IN point for that player, the split audio IN point is ignored at execution time.
- An split audio IN point cannot be set for the TO source in A/B roll editing. If set, it is ignored at execution time.

To execute a split edit

Proceed as follows.

Example: To set an split audio IN point for the player in cut editing



Split editing

Setting Separate Audio and Video IN Points — Split Editing

1 Select the channel for insert editing.

2 Select the player.

3 Set the IN points for both player and recorder.
These IN points become the video IN points.

4 Press the AUDIO SPLIT button.
The button lights. The IN indicators above the player and recorder time counters begin to flash.

5 Search for the scene where you wish to set the player's audio IN point. When you find it, press the player IN button together with the ENTRY button.
A split audio IN point is set for the player.
The player IN indicator stops flashing and lights. The recorder IN indicator goes out.

6 Press the AUDIO SPLIT button again.
The AUDIO SPLIT button starts flashing, to indicate that a split audio IN point has been set.

7 Set the player or recorder OUT point.
The OUT point can be set and confirmed regardless of the state of the AUDIO SPLIT button.

8 If necessary, conduct a preview.

9 Press the AUTO EDIT button to execute the edit.

To adjust a split audio IN point

Repeat steps **4** to **6**.
You cannot adjust a split audio IN point unless the AUDIO SPLIT button is lit.

To display the offset of a split audio IN point

Verify that AUDIO SPLIT button is lit, then press the IN button together with the OUT button.
The time counter of the VTR for which you set the split audio IN point (the FROM source or the recorder) displays the difference between the split audio IN point and the video IN point.

Note on trimming IN and OUT points while the AUDIO SPLIT button is lit

It is not possible to use the ⊞ / ⊟ trim buttons to adjust split audio and video IN points simultaneously.

To use split IN points in A/B roll editing

Follow the procedure explained above, but be mindful of the following points.

- Player designations apply to both the FROM and TO sources.
- You can set split audio IN points for the FROM source or for the recorder, but not for both.
- You need to set a transition time for effects.

Editing Still and Variable-Speed Playback — DT Editing

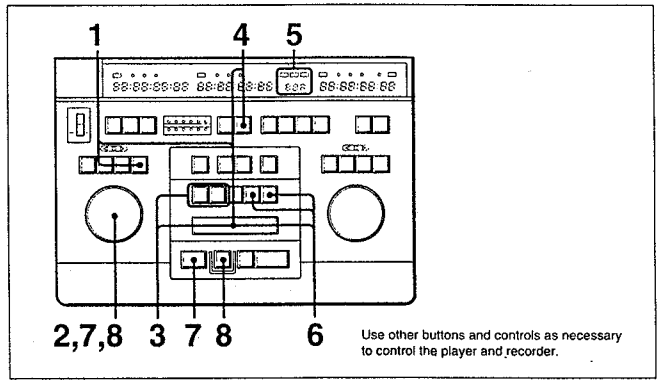
When using a player VTR that supports Dynamic Tracking (DT), you can begin editing at a specified initial speed, and then vary the speed during recording by rotating the search dial. The range of playback speeds varies between –1 and +2 times normal speed, or between –1 and +3 times normal speed, depending on the settings of setup menu items 18 and 19.

Note

In DT editing, the allowable playback range and actual playback speeds may vary for different players. Set the maximum forward playback speed to +2 or +3 times normal speed, according to the capabilities of your player.

To perform DT editing with one player

Proceed as follows.



To perform DT editing with one player

1 With the player search dial in the raised position, press the VAR(ENTRY + FF) button.
The player enters variable-speed playback mode. The player direction indicator (■) starts flashing.

2 Start playback with the player, and rotate the search dial to select the desired speed.

3 At the scene where you want to set the player IN point, press the ENTRY button while holding down the player IN and OUT buttons.
The current tape postion is set as the IN point. The current tape speed is set as the initial DT playback speed.

4 Press the DUR(ENTRY + TRANS) button.
The button starts flashing.

(Continued)

5 Enter the duration using the EDIT NO./TRANS/DUR buttons (maximum 999 frames).

6 Set the recorder edit points.

7 If necessary, conduct a preview.
The player's speed at the IN point will be the DT initial speed. After passing the IN point, you can rotate the search dial to vary the speed.

8 Press the AUTO EDIT button to execute the edit.
To vary playback speed during an edit, rotate the search dial in the same way as you do during a preview.

If you want to change the playback speed during editing

Leave the search dial in the initial speed position, set in step **3**, until playback passes the IN point. If you rotate the search dial before beginning a preview or automatic edit, the playback may be subject to sudden variations in speed.

To set the player IN point precisely in DT editing

Replace steps **1** to **3** of the previous procedure with the following steps.

1 Search for the desired scene and set the IN point.

2 Put the player into variable-speed mode, and rotate the search dial to select the desired initial speed.

3 While pressing the GO TO button, press the player IN button to move the tape to the IN point.

4 At the IN point, press the ENTRY button while holding down the player IN and OUT buttons.

To carry out A/B roll DT editing

1 Select a player which supports DT playback as the FROM source or the TO source, then carry out steps **1** to **5** in the procedure "To perform DT editing with one player" on *page 6-9(E)*.

2 Depending on whether or not you will carry out DT editing with the other player as well, proceed as follows.
- If DT editing will not be used with the other player
  Set the edit points for the other player.
- If DT editing will be used with the other player
  Carry out steps **2** to **5** in the procedure "To perform DT editing with one player."

3 Set the transition time.

4 Carry out steps **6** to **8** in the procedure "To perform DT editing with one player."

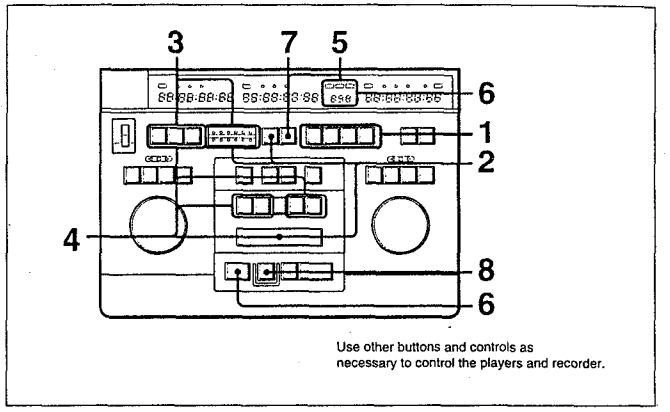
Currently selected player during DT editing with two DT players

During DT editing with two DT players, the search dial operates to change the speed of the currently selected player only. The currently selected player is the player corresponding to the lit source selection button, either P1 or P2.

Setting Transition Points During Preview or Edits — SYNC Roll Editing

Using two synchronized players, you can begin a special effect transition at any point in the edit.

To perform a SYNC roll edit, proceed as follows.



SYNC roll editing procedure

1 Select the edit mode.

2 Press the SYNC(ENTRY + A/B) button.
The button lights. The green FROM indicator in the source selection section lights.

3 Select the FROM and TO sources.

4 Set the edit points for the recorder and the FROM and TO sources.
- If the FROM and TO sources are VTRs (corresponding to the P1 and P2 buttons), you do not need to set their OUT points. The OUT points will be calculated automatically at the time when you execute the edit or preview.
- If the FROM and TO sources are auxiliary sources (corresponding to the AUX1(ENTRY + P1), AUX2(ENTRY + P2), and AUX3(ENTRY + FROM TO) buttons), you do not need to set their durations.

5 Set the transition time.
If a preview is unnecessary, proceed to step **8**.

6 Execute a preview.
The FROM and TO sources begin to run simultaneously. When the recorder passes its IN point, the TRANS button begins to flash rapidly and the duration is shown in the EDIT NO./TRANS/DUR display.

7 Press the TRANS button at the desired scene.
The transition begins.

To change the transition IN point
Return to step **6** and repeat.

8 Execute the edit.
However, if you have skipped the preview, press the TRANS button at the desired scene, as was done in step **7**.

If you previewed the edit
The transition is executed at the same point as during the preview.

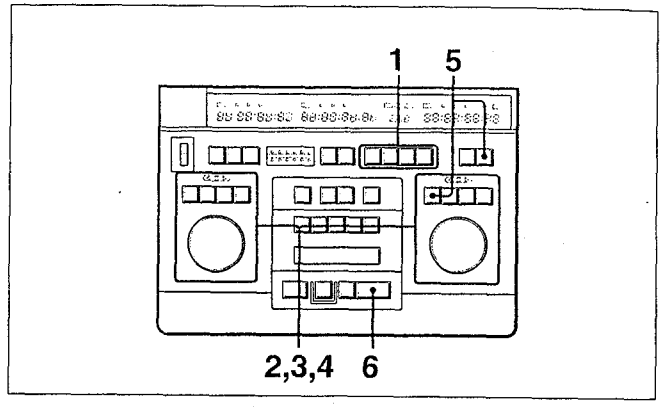
Controlling External Equipment via the GPI Interface

This unit features a GPI interface for controlling external equipment such as still picture devices, character generators, and superimposers. The timing and pulse width of signals output from the GPI OUT connector can be specified using setup menu items 06, 07 and 08 of the setup menu. These signals are output when you conduct a preview or edit.

Please consult the manuals of the connected equipment for more information about the type of signals which are required.

Manual Editing

Proceed as follows to execute a manual cut edit.



Manual editing procedure

1 Select the edit mode.

2 Search for the scenes where you want to set the player and recorder IN points.

3 Rewind the player and recorder five seconds or more.

4 Begin playback with the player and recorder.

5 At the desired IN point, press the EDIT button together with the recorder PLAY button.

6 At the point where you want to stop (the OUT point), press the ALL STOP button.
The player and recorder stop.

For still pictures of the player and recorder at the OUT point
At the OUT point, press the player and recorder STILL buttons.

Note

Avoid beginning an edit while the recorder is in still playback mode. Doing so can cause picture breakup.

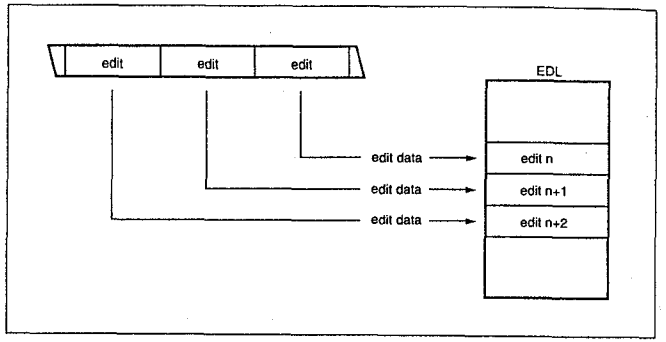
Chapter 7
Managing Edit Data — The Edit Decision List (EDL)

This chapter explains how to save edit data, and how to recall the data for adjustments and use in later automatic edits.

Outline ..... 7-2 (E)
Registering an Edit (Internal EDL Mode Only) ..... 7-5 (E)
Recalling an Edit (Internal EDL Mode Only) ..... 7-6 (E)
Adjusting and Deleting Edits ..... 7-7 (E)
Uploading/Downloading the EDL (Internal EDL Mode Only) ..... 7-8 (E)

Outline

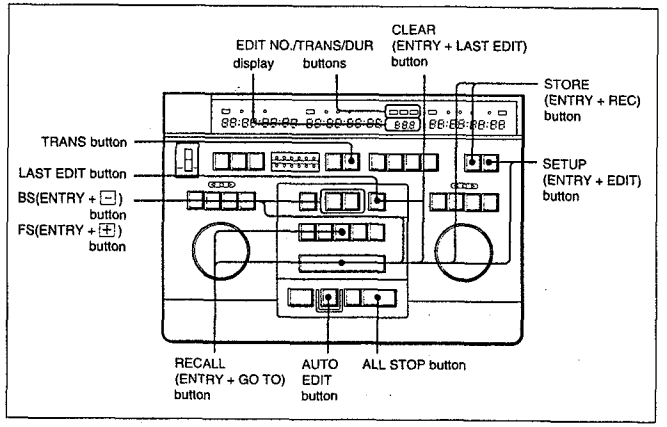
The unit manages edit data by means of a revisable edit decision list (EDL). The set of all data registered for one edit is called simply an edit. Each edit is assigned a number when it is registered in the EDL. You can use this number to recall the edit whenever you need it again.



Edit decision list

Buttons used to manage the EDL

The following buttons are used in the EDL management procedures explained in this chapter.



Buttons used to manage the EDL

Internal EDL mode and external EDL mode

You can select internal or external EDL mode with setup menu item 25 (EDL MODE).

For more information about the setup menu, see "PVE-500 Setup" (page 3-8(E)).

Internal EDL mode

The unit's internal EDL contains up to 100 edits, numbered 01-99,00. You can add edits to the EDL, delete them, or recall and execute them at any time. You can also download and upload data from the internal EDL to and from a personal computer or other external device.
The EDL remains in the unit's memory for at least 100 hours after the unit is turned off (provided that the unit has been powered on for at least two hours continuously).

External EDL mode

Each time you press the AUTO EDIT button to execute an automatic edit, the edit is output to the external device. Up to 999 edits can be output, numbered 001 to 999. External EDL mode is a convenient way to review edit data, for example by outputting the data to a printer.

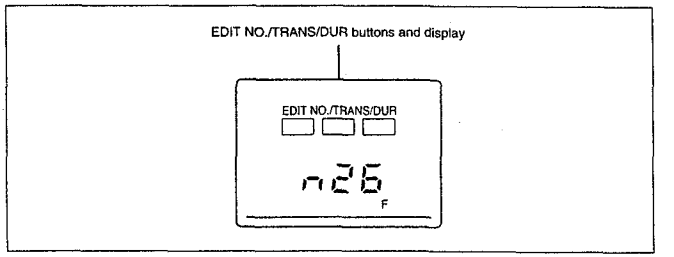
Edit number display

Whenever the TRANS button is not lit, the number of the current edit is displayed in the EDIT NO./TRANS/DUR display.

Edit number display in internal EDL mode

In internal EDL mode, the current edit number is displayed as a two-digit number. Depending on the status of the edit, the number may be preceded in the display by 'd' or 'n'. The meaning of these letters is as follows.

n: New edit, not yet registered in the EDL.
d: Deleted from the EDL.



Display of edit number "n26" in internal EDL mode

Outline

Edit number display in external EDL mode
A three-digit edit number is displayed.
Each time you press the AUTO EDIT button, the edit is output to the connected equipment, and the edit number is updated.

Recalling the previous previews — the last edit buffer

The two most recent edits for the current edit number are saved automatically. This is convenient when you want to compare two previews.

To use this function, press the LAST EDIT button.
Each time you press the button, the most recent preview data is replaced by the previous preview data, or vice versa.

When only one preview has been executed with the current edit number
When you press the LAST EDIT button, the preview data is recalled.

When no preview has been executed with the current edit number
This function is not available.

Registering an Edit (Internal EDL Mode Only)

Edits are registered under numbers from 01 to 99, 00. There are two ways to register an edit: automatically, whenever you execute an edit, or manually, without executing an edit.

To register an edit automatically
Press the AUTO EDIT button. The edit is registered in the EDL.

To register an edit without executing it
Press the STORE(ENTRY + REC) button.

When you register a new edit (preceded by 'n' in the edit number display)
The display changes to the next edit number.

When you save an edit after recalling and modifying it
The displayed number does not change.

When you recall an edit from the EDL and execute it without changing it
The displayed number does not change.

When you register edit number 00 (the 100th edit)
The edit number may or may not be updated, depending upon the setting of setup menu item 26 (AUTO EDL CLEAR).

- SEtUP-26 is OFF (overwrite disabled)
  The edit number cannot be updated because the EDL is full. The edit number display changes to "FUL", and returns to the current edit number "00" when you press a key.
- SEtUP-26 is On (overwrite enabled)
  The edit number changes to "n01". The edit previously registered under number 01 is lost.
  If you continue to register edits in this state, the unit continues to overwrite old edits in the order n02, n03, ...

Recalling an Edit (Internal EDL Mode Only)

Proceed as follows to recall and execute an edit registered in the EDL.

To recall an edit using the edit number

Proceed as follows.

1 Verify that the TRANS button is not lit.
If the button is lit, press it once. If it is flashing, press it twice.

2 Enter the number of the edit which you want to recall, using the rightmost two buttons of the three EDIT NO./TRANS/DUR buttons.
The edit number flashes.

3 Press the RECALL(ENTRY + GO TO) button.
The edit specified in step 2 is recalled.

To recall an edit earlier than the current one

Press the BS(ENTRY + ⊟) button.
The edit immediately before the currently displayed edit is recalled.
Keep pressing the button until the display shows the edit number you want.

To recall an edit later than the current one

Press the FS(ENTRY + ⊞) button.
The edit immediately after the currently displayed edit is recalled.
Keep pressing the button until the display shows the edit number you want.

To execute a recalled edit

Press the AUTO EDIT button.

To execute all edits from a recalled edit to the end of the EDL

Press the MULTI(ENTRY + AUTO EDIT) button.
The unit automatically executes all subsequent edits, beginning with the current edit and continuing in edit number order to the last edit registered in the EDL.

Note on continuous edit execution

Unless you are controlling the DFS-500 snapshot function, only cut edits are selected for continuous execution.

Adjusting and Deleting Edits

You can adjust edits after recalling them from the EDL. You can also delete edits from the EDL, and restore deleted edits by undoing the deletion.

To save an edit which has been recalled and adjusted (internal EDL mode only)

- Follow the normal procedures to recall the edit, change it, and register it in the EDL.

For more information, see "Recalling an Edit" (page 7-6(E)) and "Registering an Edit" (page 7-5(E)).

To delete an edit from the EDL (internal EDL mode only)

Recall the edit which you want to delete, then press the CLEAR(ENTRY + LAST EDIT) button.
A 'd' appears in front of the displayed edit number.
If an edit number is preceded by 'd', you can follow the normal procedures to recall the edit. However, it cannot be executed.

To restore a deleted edit

Recall the edit, then press the LAST EDIT button.
The 'd' displayed in front of the edit number disappears.

To clear the EDL

Press the CLEAR(ENTRY + LAST EDIT) button together with the ALL STOP button.
The EDL is initialized and all edits are erased.

Note

When the EDL is initialized, all of the edits which it contains are lost permanently. They cannot be restored.

When you initialize the EDL

- In internal EDL mode, all edits in the EDL are erased and the edit number display changes to "n01".
- In external EDL mode, the edit number display changes to "001".

Uploading/Downloading the EDL (Internal EDL Mode Only)

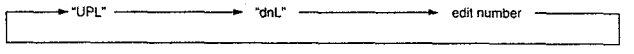
You can connect a personal computer or other external equipment to the EDL IN/OUT connector in order to download data from the EDL to the external device. You can also upload previously downloaded data from the external device into the EDL.

Proceed as follows to upload or download EDL data.

1 Prepare the external equipment for uploading or downloading.

2 Display the current edit number in the EDIT NO./TRANS/DUR display.

3 Press the leftmost of the three EDIT NO./TRANS/DUR buttons to display "dnL" (download) or "UPL" (upload).
Each time you press the button, the display changes in the following order.



4 Press the RECALL(ENTRY + GO TO) button.

When downloading

The data is output immediately to the external device.

When uploading

The data is imported into the EDL as soon as you execute the upload from the external equipment.

For more information about uploading and downloading EDL data, please contact a Sony service representative.

Appendix

Error Messages ..... **A-2 (E)**
In Case of Trouble ..... **A-3 (E)**
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Glossary ..... **A-6 (E)**

Error Messages

If the unit is not able to operate normally, for example after an invalid key operation, it issues a warning sound or displays an error message.

Error messages

Error Message	Location	Problem	Countermeasure
IN and OUT indicators flash alternately	Time counter of relevant VTR	Invalid relation between IN and OUT points at time of preview, automatic edit, or edit registration.	Reset the IN and OUT points correctly.
Edit SEt	Recorder time counter	At time of preview, automatic edit, or edit registration: • edit mode has not been set. • assemble mode was selected for split edit.	Select the correct edit mode.
rEC Inhi	Recorder time counter	At time of preview or automatic edit, the recorder or cassette is record inhibited.	Enable recording for the recorder or cassette.
Srch Err	Time counter of relevant VTR	When seeking to a tape position with the GO TO button, or at time of preview or automatic edit: • Beginning or end of tape, or discontinuous time codes detected. • VTR cannot seek to point because it was operated manually.	• Check to be sure that the specified tape position was correct. • Check to be sure that time codes are recorded continuously. • Repeat the seek command without running tape manually.
S-LO Err (not displayed when SEtUP-09 is set to OFF)	Time counter of relevant VTR	VTR does not servo lock at IN point for preview or automatic edit.	Execute again. In some cases, you can set SEtUP-09 to OFF.
Sync Err (not displayed when SEtUP-10 is set to OFF)	Time counter of relevant VTR	VTR does not synchronize during preview or automatic edit.	Execute again. In some cases, you can set SEtUP-10 to OFF.
CtrL Err	Time counter of relevant VTR	VTR was operated manually during preview or automatic edit.	Execute again without operating manually.
FUL (not displayed when SEtUP-26 is set to On)	EDIT NO./TRANS/ DUR display	EDL buffer is full.	• Clear the EDL. (All edits lost) • Set SEtUP-26 to On. (Edits overwritten, beginning with 01)
Warning sound (no display)		VTR cannot be controlled during preview or automatic edit.	• Check for loose connections. • Check to be sure that VTR's AUTO OFF indicator is off.
		Edit point not set at time of preview, automatic edit or registration.	Set edit points and execute again.
		Connection to VTR lost.	• Check for loose connections. • Check to be sure that VTR's AUTO OFF indicator is off. • Check to be sure that VTR power is on.

In Case of Trouble

Problem	Checkpoint
Nothing is displayed in the time counter.	• Are there any loose connections? (Check to be sure that all connectors are firmly seated.) • Is the VTR power turned on?
The time counter display is flashing.	If VTR LOCAL/REMOTE switch is set to LOCAL, set to REMOTE.
The time counter display doesn't change.	Are the necessary CTL signals recorded on the tape?
Preview or auto edit not executed when the PREVIEW or AUTO EDIT button is pressed.	• Is the cassette record inhibited? • Are there any loose connections? (Check to be sure that all connectors are firmly seated.) • Has the tape run to the end? If so, rewind it. • Are the VTR's INPUT SELECT switches set properly? • Are this unit's edit mode selection buttons set correctly? • In insert mode, are CTL signals recorded on the entire tape? (*See page 3-15(E).*) • In assemble mode, are CTL signals recorded around the IN point? (*See page 3-15(E).*) • Are the IN and OUT indicators flashing alternately? (If an IN point was set after an OUT point. Reset the edit points correctly.) • The VTR's AUTO OFF indicator should not be lit? (*See your VTR manual for details.*)
Preview and automatic edit can be executed, but edit points are at different positions.	• You may have reset the time counter since setting the edit points. • With some VTRs, the actual edit points may be slightly different from those which you entered. Correct with the ⊞ / ⊟ trim buttons.
There is picture breakup between edits.	• Are CTL signals continuous across the edit transition? • There is picture breakup between edits when the REC button is used. Use the AUTO EDIT or EDIT button instead.
There are horizontal stripes on the screen.	Guard band noise appears on the screen at playback speeds other than normal speed. This is not a malfunction.
Playback is unstable.	• Is there noise in the VTR input signals? (Check by changing the INPUT SELECT switch.) • In insert editing, the picture may be unstable if CTL signals are irregular or noisy. • The recorder picture may break up when you search with the player. (Stop the player, or return it to normal playback.)
The picture drifts during searches.	Try adjusting the horizontal and vertical sync knobs on the monitor.
A video switcher or audio mixer does not respond.	• Are there any loose connections? (Check to be sure that connectors are firmly seated.) • Is the switcher or mixer power on? • Is the video switcher set to Editor Enable? • Is the mixer control mode set correctly? • Are the necessary reference video signals being supplied to this unit?

Specifications

General

Power	AC 120V (for U.S. and Canada)/220 to 240V (for Europe) ±10%, 47.5 to 63Hz
Power consumption	Maximum 10W (for U.S. and Canada)/11W (for Europe)
Operating Temperature	5°C to 40°C (41°F to +104°F)
Storage Temperature	–20°C to +60°C (– 4°F to +140°F)
Mass	3.2 kg (7 lb)
Dimensions	390 × 94 × 265 mm (w/h/d) (15 3/8 × 3 3/4 × 10 1/2 inches)

Editing Precision

With time codes: ±0 frame during synchronization
With CTL signals: ±1 frame during synchronization

Input and Output Connectors

AC IN (3-pin male)
PLAYER 1 (D-SUB, 9-pin female)
  RS-422A
PLAYER 2 (D-SUB, 9-pin female)
  RS-422A
RECORDER (D-SUB, 9-pin female)
  RS-422A
SWITCHER (D-sub, 9-pin female)
  RS-422A
MIXER (D-SUB, 9-pin female)
SERIAL/PARALLEL switch
  SERIAL: RS-422A
  PARALLEL: Sony parallel mixer interface
EDL IN/OUT (D-SUB, 9-pin male)
  RS-232C
    Start bit: 1
    Data bits: 7
    Parity bit: even
    Stop bits: 2
    Speed: 9600 baud
GPI OUT (BNC type)
  Active low
  Low level: 0 to 0.5V, 24mA or less
  High level: 3.5 to 5V
REF. VIDEO IN (BNC type)
  0.5 to 2Vp-p, 75-ohm, unbalanced
  (High definition TV synchronization signals not supported)

Supplied Accessories

Power cord (1)
Operating Instructions (1)

Design and specifications subject to change without notice.

Optional Accessories

RMM-500 control panel mount adaptor
RCC-5AA mixer control cable (5m) (about 16 feet)
RCC-5G/10G/30G 9-pin remote cables (5m/10m/30m)
  (about 16 feet/33 feet/98 feet)

Recommended Equipment

VTRs: VTRs having 9-pin remote connector
  BVH, DVR, DVW, BVW, PVW, UVW, BVU, VO, EVO, SVO/SVP, PCM and LVR/LVA series
Video switchers:
  DFS-500, BVS-3000, DVS-8000, DVS-6000, DVS-2000 series
  BVS-V1201, BVS-A1201
  BVS-1100A, GVG model 100
Audio mixers:
- 15-pin parallel interface
  MXP-29, MXP-290/290R, MXP-P390/P390R, VSP-A600/A600R
- 9-pin serial interface
  MXP-S390/S390R, VSP-8000, DMX-E3000, DMX-E2000

Glossary

A/B roll editing
An edit in which two or more players are used to create special effects such as dissolve and wipe, and one recorder is used to record the results of the edit.

Black burst
A video signal which has no luminance or chrominance components, but contains all other elements (sync and color burst) of a video signal. Black burst is a common reference signal used for synchronizing video equipment.

Color bar signals
Test signals displayed on the screen as vertical stripes of different colors. Used for adjustment of hue, saturation of a video camera and video monitor.

Color framing
To adjust the player IN points relative to the recorder IN points to maintain the color subcarrier phase, one cycle of which consists of two (NTSC)/ four (PAL/SECAM) frames. However, this unit does not modify the player IN point data. Instead it uses the color framing servo functions of the connected VTRs to achieve the same effect.

CTL (Control Signal)
Abbreviation of control signal. In VTRs, regular pulses recorded in a longitudinal tape track. By counting this signal, it is possible to determine the number of frames, and hence the tape's running time. Used mainly to adjust the tracking position of video heads, and to achieve time code continuity in continuous recording.

Dissolve
An effect in A/B roll editing, in which the old video (FROM source) is faded out while the new video (TO source) is faded in.

Drop-frame mode
A mode of time code running in which the time difference between a time code and NTSC video run is adjusted (the time code runs at 30 frames/ sec while the video runs at 29.97 frames/sec). The time code and video are synchronized by dropping the first two frames of the time code every minute, except at the ten-minute marks. See also Non-drop -frame mode.

E-E mode (Electric-to-Electric mode)
The input signals are passed through the recorder's electronics, but not through magnetic conversion circuits such as heads and tapes, and supplied to the output connectors. This mode is useful for confirming the input signals.

Edit
To process original audio and video signals by adding and replacing other signals over a specified segment on a videotape.
In this manual, an edit also refers to the data used to edit such a specified segment on a video tape.

GPI (General Purpose Interface)
An interface that allows this unit to control devices such as still picture devices, character generators and superimposers which are not equipped with a defined interface.

Non-drop-frame mode
A mode of time code running in which the number of frames of the time code and video run is not adjusted.
See also Drop-frame mode.

NTSC (National Television System Committee) system
A color television system developed by NTSC and adopted as the standard television system in the United States and Japan.

PAL (Phase Alternation by Line) system
A color television system developed in Germany and adopted as the standard television system in European countries.

Postroll
To run a videotape beyond an edit-end point to check the picture that follows.

Preroll
To run a videotape to a point prior to an edit-start point to enable the tape to reach a steady speed and to synchronize.

Reference video signal
A video signal which contains a sync signal and color burst signals, used as a reference for synchronization of video equipment.

SECAM (Sequential-and-memory) system
A color television system used in France, former Soviet Union, and Eastern Europe.

Servolock
To lock the phase and speed of a VTR's head drum rotation and tape transport to a reference signal during recording and playback.

Source
A video or audio signal source.

Standby mode
One of two conditions in a VTR's stop mode. The head drum is rotating and the tape is wrapped around the drum. The VTR is ready for recording or playback. The other condition of the VTR's stop mode is called standby off mode. In standby off mode, the head drum does not rotate and tape is slackened. There is no damage to the video heads and the tape, but the VTR is not ready for immediate recording or playback.

Synchronization
To adjust the running speed and phase of playback and recording tapes while the tapes run from a preroll point to an edit-start point, to enable accurate editing.

Time code
A digitally encoded signal that is recorded on videotape in units of hours, minutes, seconds, and frames, to label each frame of video. SMPTE time code is used for the NTSC system, and EBU time code is used for the PAL/SECAM system. There are two kinds of recorded signal: longitudinal time code (LTC) and vertical interval time code (VITC).

Tracking
An electronic adjustment of the video heads in the playback phase so that they match the recording phase of the tape.

Wipe
An effect in A/B roll editing, in which the old video (FROM source) is wiped off the screen by the new video (TO source).

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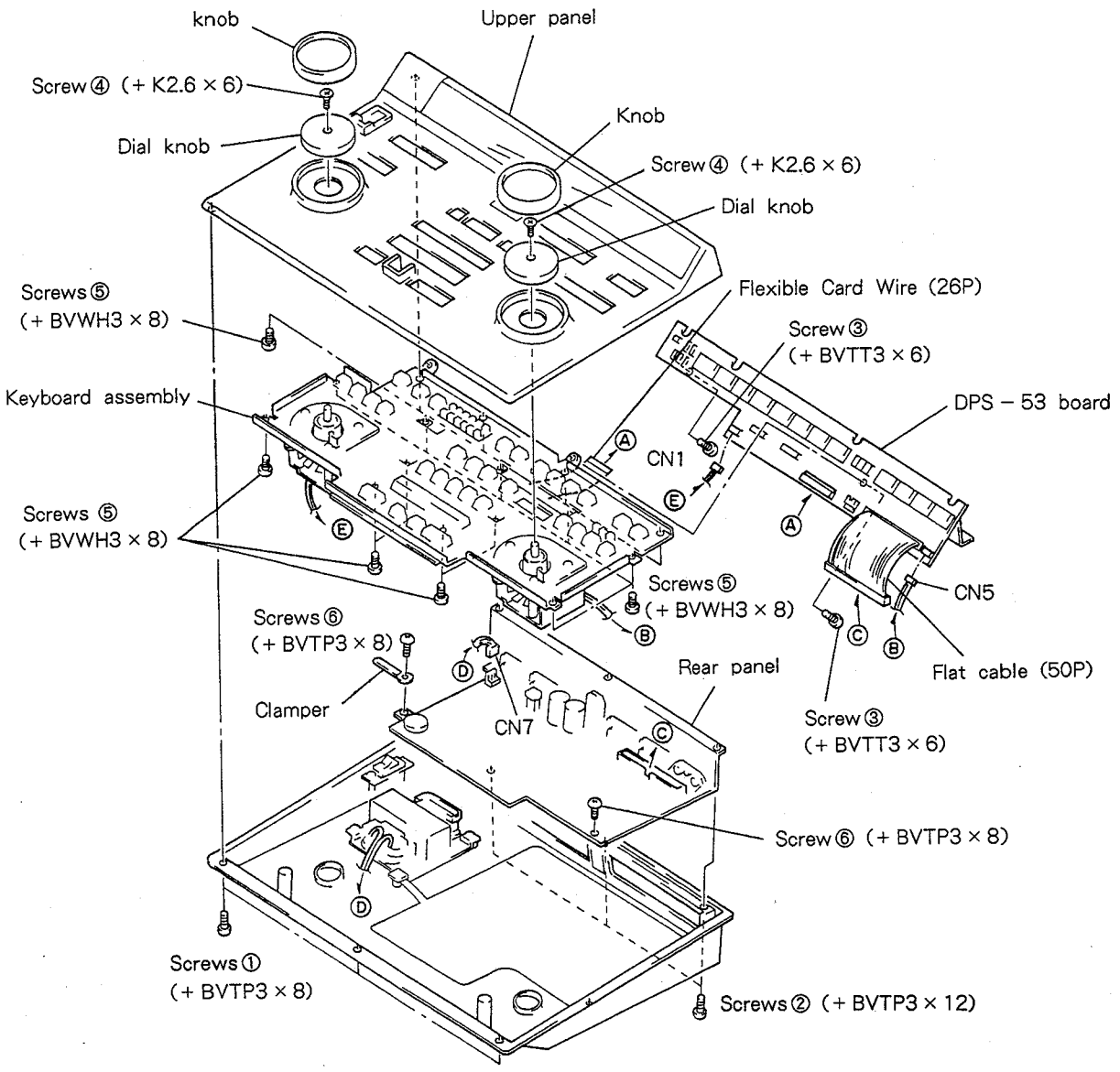
SECTION 2
SERVICE INFORMATION

2-1. REMOVAL OF MAIN BLOCK

Upper Panel

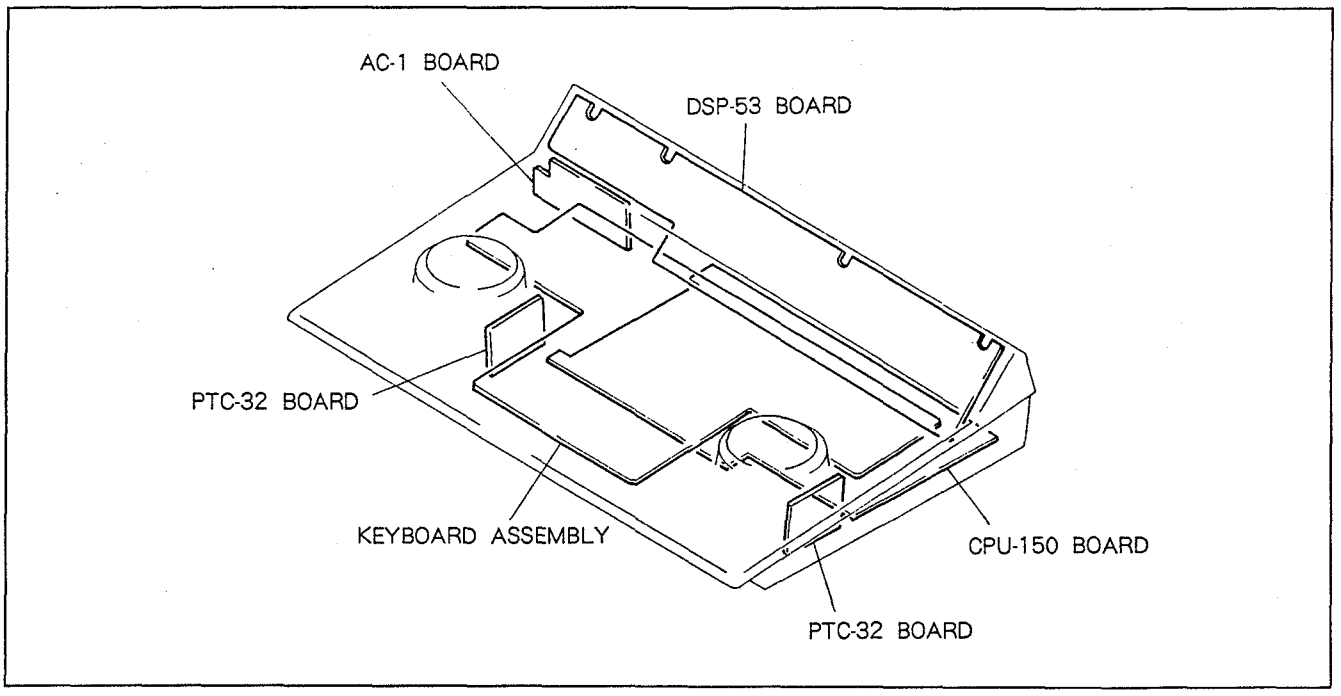
1. Remove the three screws ①, four screws ②, flat cable(50P), and then remove the upper panel.
2. Remove the two screws ③, two connectors(CN1 and CN5), flexible card wire(26P), and then remove DPS-53 board.
3. Remove the knob, two screws ④, and the dial knob.
4. Remove the fifteen screws ⑤ and then remove the keyboard assembly.



Rear Panel

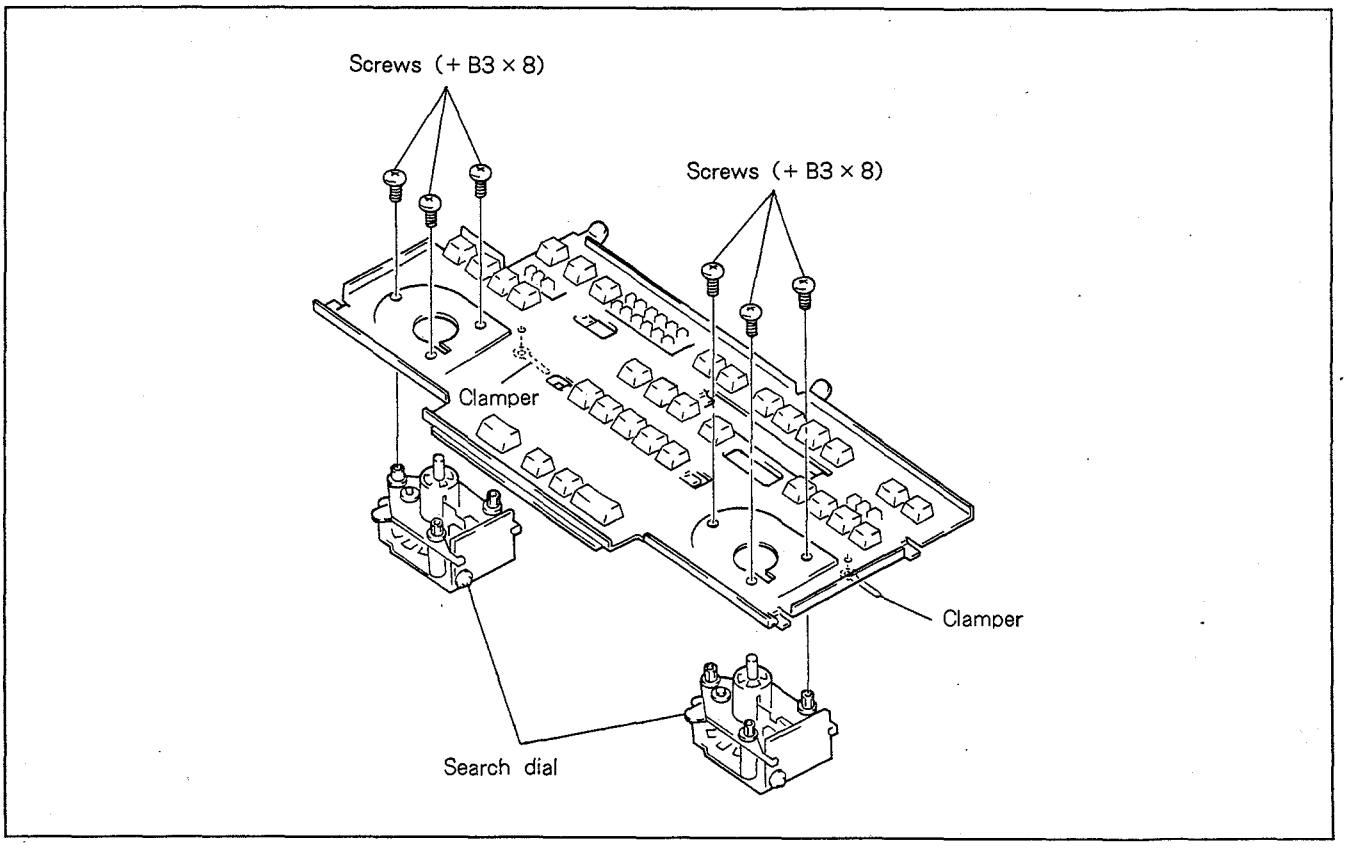
1. Remove the upper panel.
2. Disconnect connector CN7 from CPU-50 board.
3. Remove the two screws ⑥ and then remove the rear panel.

2-2. BOARDS LOCATION



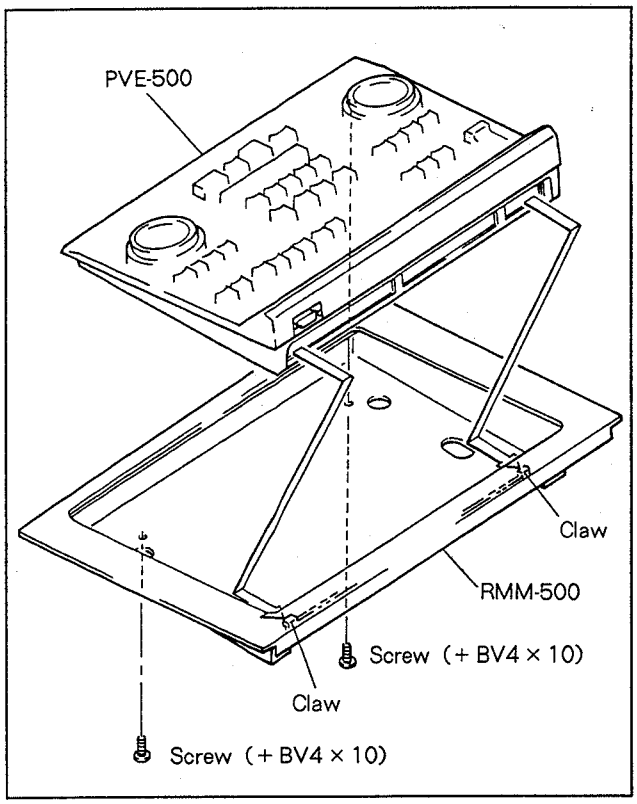
2-3. REPLACEMENT OF SEARCH DIAL

1. Remove the keyboard assembly. (Refer to 2-1. REMOVAL OF MAIN BLOCK.)
2. Remove the three screws and remove the search dial.
3. Replace the new one in the reverse order of the above.

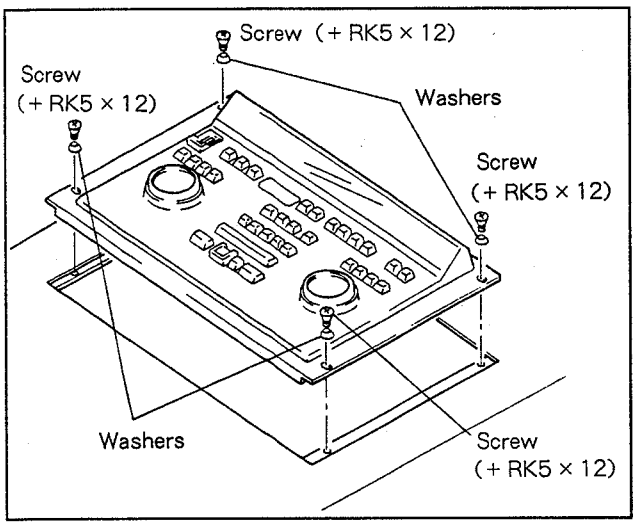


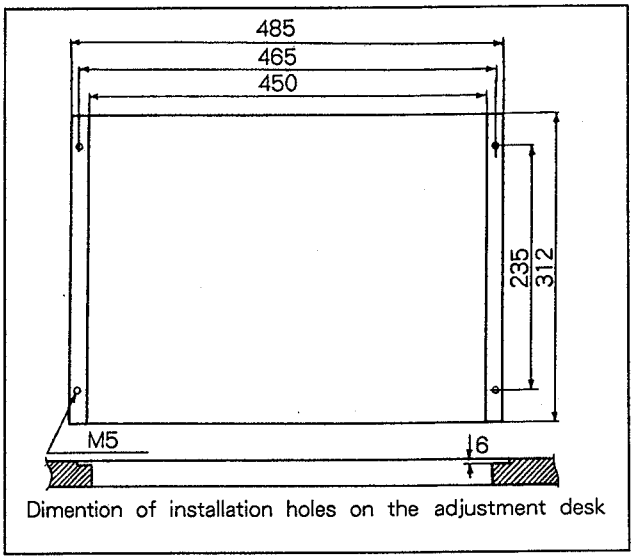
2-4. INSTALLATION OF RMM-500

1. Install PVE-500 to RMM-500 at the claws and tighten them together with the two screws supplied (+BV4 × 10).



2. Fit RMM-500 to the adjustment desk and tighten them together with the four screws and four washers supplied.





Dimention of installation holes on the adjustment desk

2-5. FIXTURES/MESURING INSTRUMENTS

D-sub 9-pin shorting connector (male)
Sony Part No.: J-6210-220-A
This connector is shorted between 2P and 8P, between 3P and 7P.
Used for checking the switcher, serial mixer, players 1 and 2, recorder port.

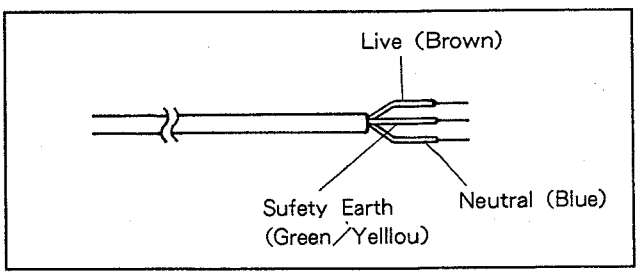
D-sub 9-pin shorting connector (female)
Sony Part No.: 1-568-181-11
Short this connector between 2P and 3P and use it.
Used for checking EDL IN/OUT port.

Ocilloscope
Equivalent: 2445/Textronix
Used for checking parallel mixer port and GPI output.

Video signal generator (It is possible to use VTR out.)
Equivalent: TSG-170A/Textronix (For NTSC).
TSG-271A/Textronix (For PAL).
Used for checking parallel mixer port and GPI output.

2-6. CONNECTING OF SUPPLIED POWER CORD (FOR EK)

Part No. 1-590-910-11



2-7. MATCHING CONNECTORS AND CABLES

When connecting cable to the connector on the connector panel, match those connectors or equivalent with each other as listed below.

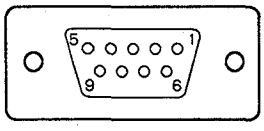
PVE – 500 side Connectors		Matching connector and cable	
Function of Connector	Using connector	Connector	Sony Part No.
PLAYER1 PLAYER2 RECORDER SWITCHER MIXER (SERIAL)	D-SUB Plug 9P, Female	D-SUB Plug 9P, Male	RCC-5G Note 1 RCC-10G Note 2 RCC-30G Note 3
MIXER (PARALLEL)	D-SUB Plug 9P, Female	D-SUB Plug 9P, Male	RCC-5AA Note 4
EDL IN/OUT	D-SUB Plug 9P, Male	D-SUB Plug 9P, Female	1-568-181-11
GPI OUT	BNC	BNC	1-560-069-11
REF. VIDEO IN	BNC	BNC	1-560-069-11

Note 1 through Note 3: RCC-5G/RCC-10G/RCC-30G (9-pin remote cable) is an optional accessory.
Their lengths are 5m, 10m, and 30m respectively.

Note 4: RCC-5AA (audio mixer control cable)is an optional accessory.
It is 5m long.

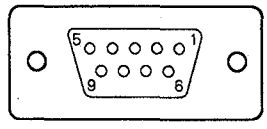
2-8. INPUT AND OUTPUT SIGNALS OF CONNECTORS

PLAYER1 (D-SUB 9 PIN: FEMALE)
Conforming to RS-422A



Pin No.	Signal	Function
1	FRAME GND	Frame Ground
2	P1 RX-A IN	Player 1 Receive "A"
3	P1 TX-B OUT	Player 1 Transmit "B"
4	P1 TX-COM	Transmit Common
5	—	
6	P1 RX-COM	Receive Common
7	P1 RX-B IN	Player 1 Receive "B"
8	P1 TX-A OUT	Player 1 Transmit "A"
9	FRAME GND	Frame Ground

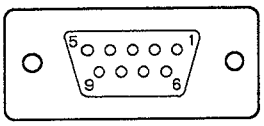
PLAYER2 (D-SUB 9 PIN: FEMALE)
Conforming to RS-422A



Pin No.	Signal	Function
1	FRAME GND	Frame Ground
2	P2 RX-A IN	Player 2 Receive "A"
3	P2 TX-B OUT	Player 2 Transmit "B"
4	P2 TX-COM	Transmit Common
5	—	
6	P2 RX-COM	Receive Common
7	P2 RX-B IN	Player 2 Receive "B"
8	P2 TX-A OUT	Player 2 Transmit "A"
9	FRAME GND	Frame Ground

RECORDER (D-SUB: FEMALE)

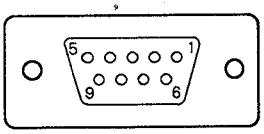
Conforming to RS-422A



Pin No.	Signal	Function
1	FRAME GND	Frame Ground
2	REC RX-A IN	Recorder Receive "A"
3	REC TX-B OUT	Recorder Transmit "B"
4	REC TX-COM	Transmit Common
5	—	
6	REC RX-COM	Receive Common
7	REC RX-B IN	Recorder Receive "B"
8	REC TX-A OUT	Recorder Transmit "A"
9	FRAME GND	Frame Ground

SWITCHER (D-SUB 9 PIN: FEMALE)

Conforming to RS-422A

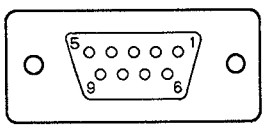


Pin No.	Signal	Function
1	FRAME GND	Frame Ground
2	SW RX-A IN	Switcher Receive "A"
3	SW TX-B OUT	Switcher Transmit "B"
4	SW TX-COM	Transmit Common
5	—	
6	SW RX-COM	Receive Common
7	SW RX-B IN	Switcher Receive "B"
8	SW TX-A OUT	Switcher Transmit "A"
9	FRAME GND	Frame Ground

MIXER (D-SUB 9 PIN: FEMALE)

SERIAL

Conforming to RS-422A



Pin No.	Signal	Function
1	FRAME GND	Frame Ground
2	MX RX-A IN	Mixer Receive "A"
3	MX TX-B OUT	Mixer Transmit "B"
4	MX TX-COM	Transmit Common
5	—	
6	MX RX-COM	Receive Common
7	MX RX-B IN	Mixer Receive "B"
8	MX TX-A OUT	Mixer Transmit "A"
9	FRAME GND	Frame Ground

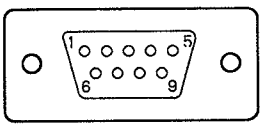
PARALLEL

Conforming to SONY PARALLEL MIXER I/F

Pin No.	Signal	Function
1	FRAME GND	Frame Ground
2	VCA1 OUT	Mixer Control Signal 1
3	VCA2 OUT	Mixer Control Signal 2
4	VCA-COM	Control Signal Common
5	L : EXT MON OUT	Mixer EXT MON Control Signal
6	VCA-COM	Control Signal Common
7	VCA3 OUT	Mixer Control Signal 3
8	VCA4 OUT	Mixer Control Signal 4
9	FRAME GND	Frame Ground

EDL IN/OUT (D-SUB 9 PIN: MALE)

Conforming to RS-232C



Pin No.	Signal	Function
1	—	
2	RXD IN	EDL Input Signal
3	TXD OUT	EDL Output Signal
4	—	
5	SIGNAL GND	Signal Ground
6	—	
7	—	
8	—	
9	—	

REF. VIDEO IN (BNC)

NTSC/PAL/SECAM
Input Voltage: 0.5 through 2.0 Vp-p
Input Impedance: 75Ω

GPI OUT (BNC)

Conforming to TTL

Low level: 0 through 0.5Vp-p (less than 20mA)
High level: 3.5 through 5Vp-p

2-9. CIRCUIT OPERATIONS

2-9-1. CPU-150 Board

Outline

CPU-150 board is a system control board that consists of two CPUs-the main CPU (ICB5) and sub CPU (ICF3). Both CPUs use 1 chip LSIs consisting of the Z80 CPU, SIO, CTC, PIO, etc. Their functions are described below.

<Main CPU>

The main CPU (ICB5) controls the VTR, GPI, buzzer, search dial, and EDL inputs and outputs, and operates the whole system.

The recorder and player 1 are controlled via the SIO (Input/output signals: RTX, RRX, P1TX and P1RX) contained in the main CPU. Player 2 and the EDL inputs and outputs are controlled via the external SIO: ICA3 (Input/output signals: P2TX, P2RX, EDTX and EDRX).

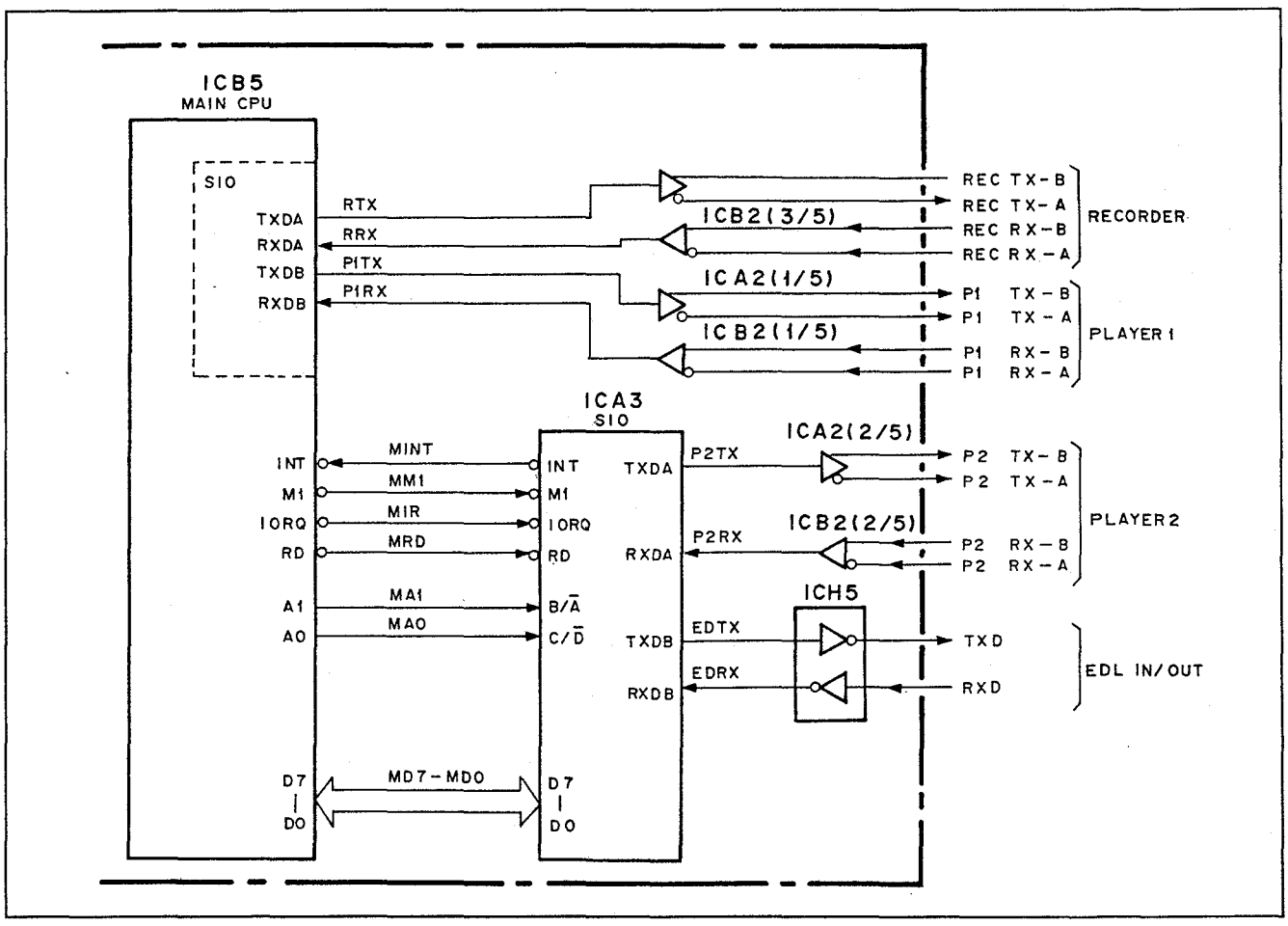


Fig. 1

The output signals (DTRA and DTRB) of the SIO contained in the CPU are used to control GPI and the buzzer.

Exclusive interface ICs (ICC3and ICD3) are used to control the search dial. The data are read by the PIO (Input ports: PA0–PA7 and PB0–PB7).

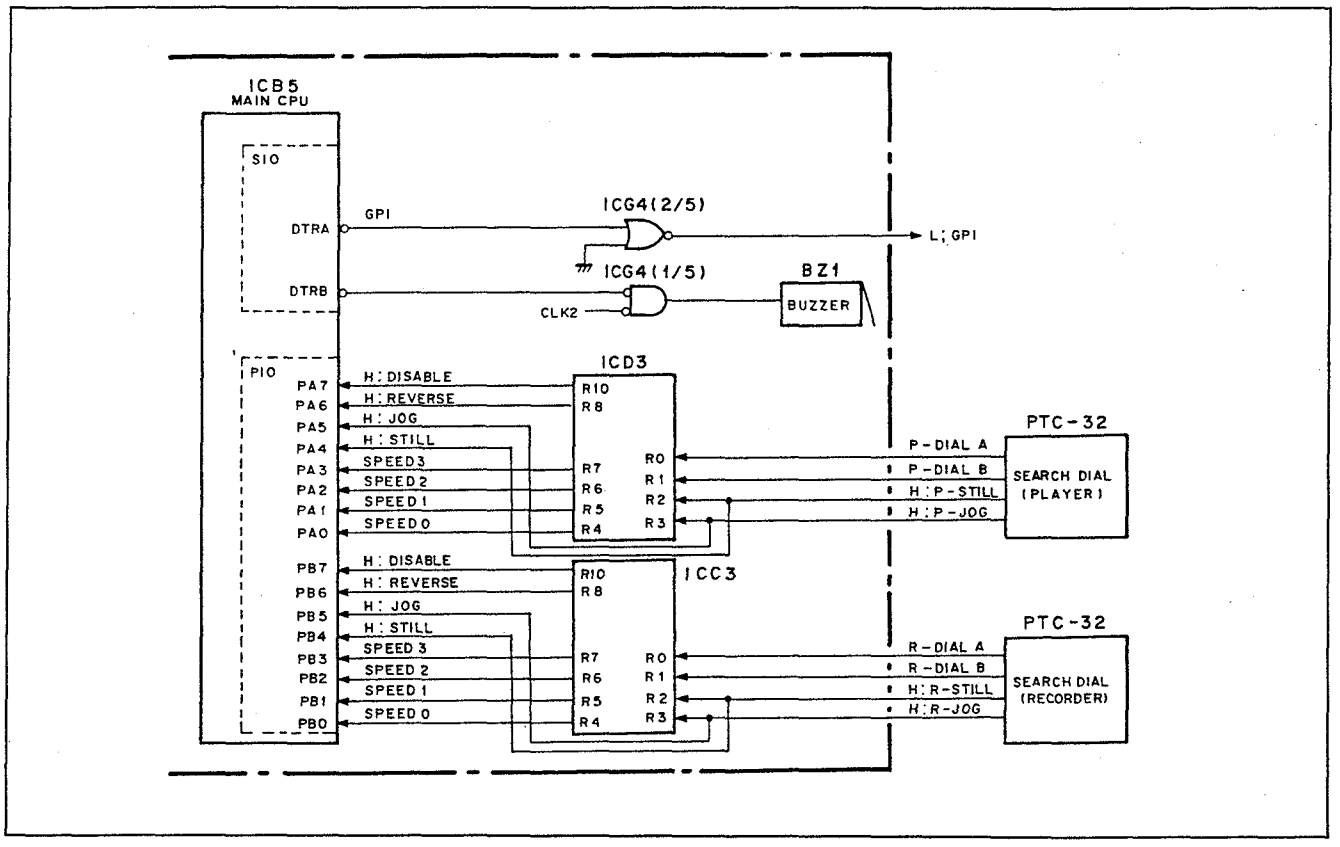


Fig. 2

<CTC of the Main CPU>

The CTC contained in the main CPU is input with the frame signal (–FRM) from the sync separator (ICH4), the interruption signal (INTL) from the dual port RAM (ICF5), and the timing clocks (CLK3 and CLK4) from the clock generator (ICD4). The timing clocks are also input to the external CTC (ICA4).

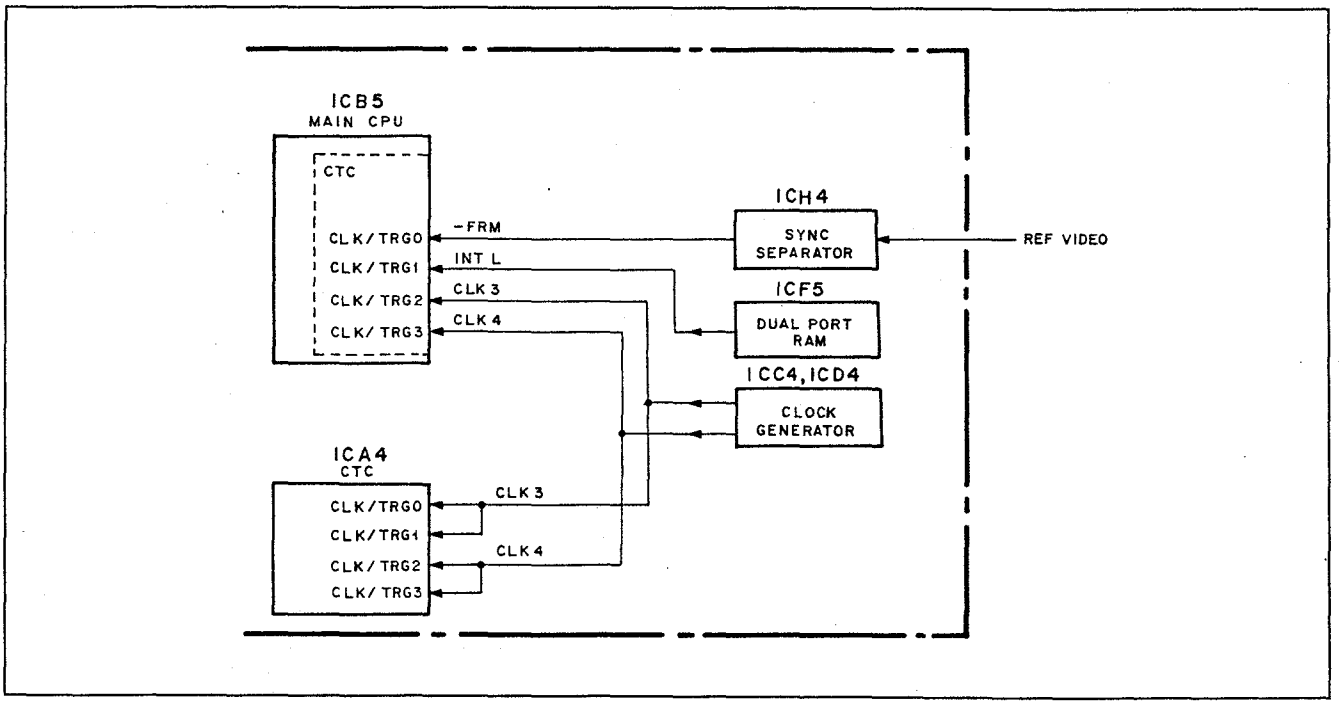


Fig. 3

<Memory of the Main CPU>

A 8K byte RAM (ICD6) and 64K byte EPROM (ICB7) are used for the memory of the main CPU. Of the 64K bytes of the EPROM, 48K bytes are effective.

The data in the RAM will be backed up by the capacitor (C37) even when the power is turned off.

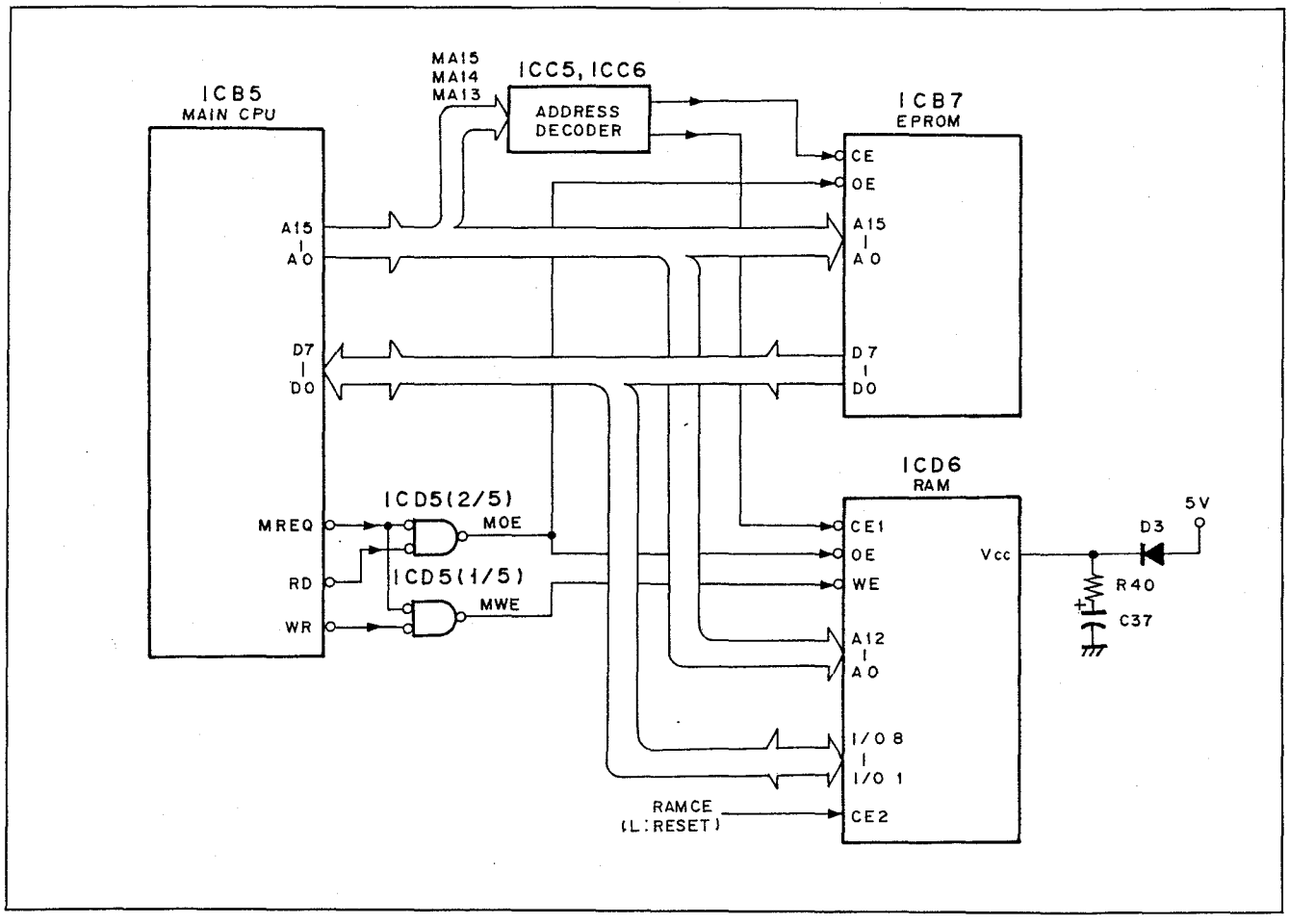


Fig. 4

<Dual Port RAM>

The main CPU (ICB5) and sub CPU (ICF3) exchange the data via the dual port RAM (ICF5). This RAM has a function which generates interruption signals.

The INTL signal is output to the CTC contained in the main CPU. The INTR signal is output to the CTC contained in the sub CPU.

Basically, the sub CPU writes the key codes in the dual port RAM and the main CPU reads them and carries out its functions accordingly. The main CPU also writes the display data in the dual port RAM and the sub CPU reads them and displays accordingly.

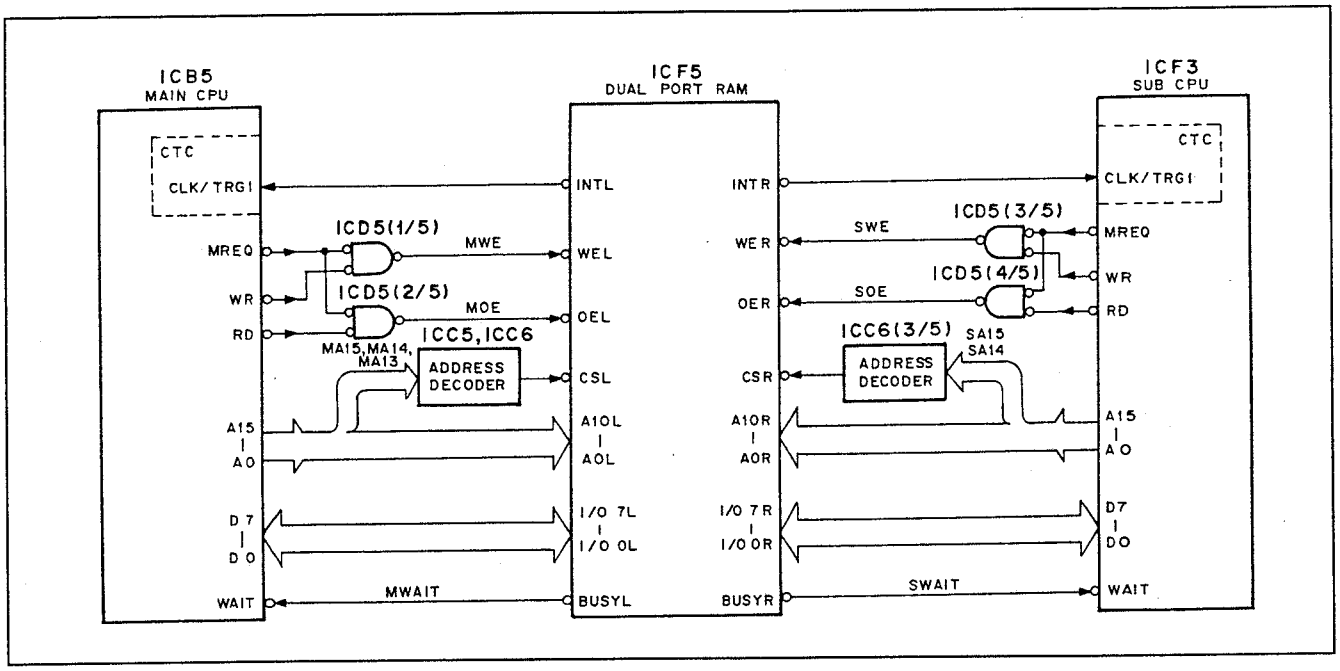


Fig. 5

<Sub CPU>

The sub CPU controls the switcher, serial mixer, parallel mixer, EEPROM (ICE3), displays, keys, and switches.

The switcher and serial mixer are controlled via the SIO contained in the sub CPU (Input/output signals: SWTX, SWRX, MXTX, MXRX).

The parallel mixer is controlled at a 0 through 5V voltage via the PIO contained in the CPU (Output ports: PA5–PA7 and PB0–PB7) and the D/A converter (ICF2) that has four circuits.

The EXT MON is controlled using the DTRB signal of the SIO contained in the sub CPU.

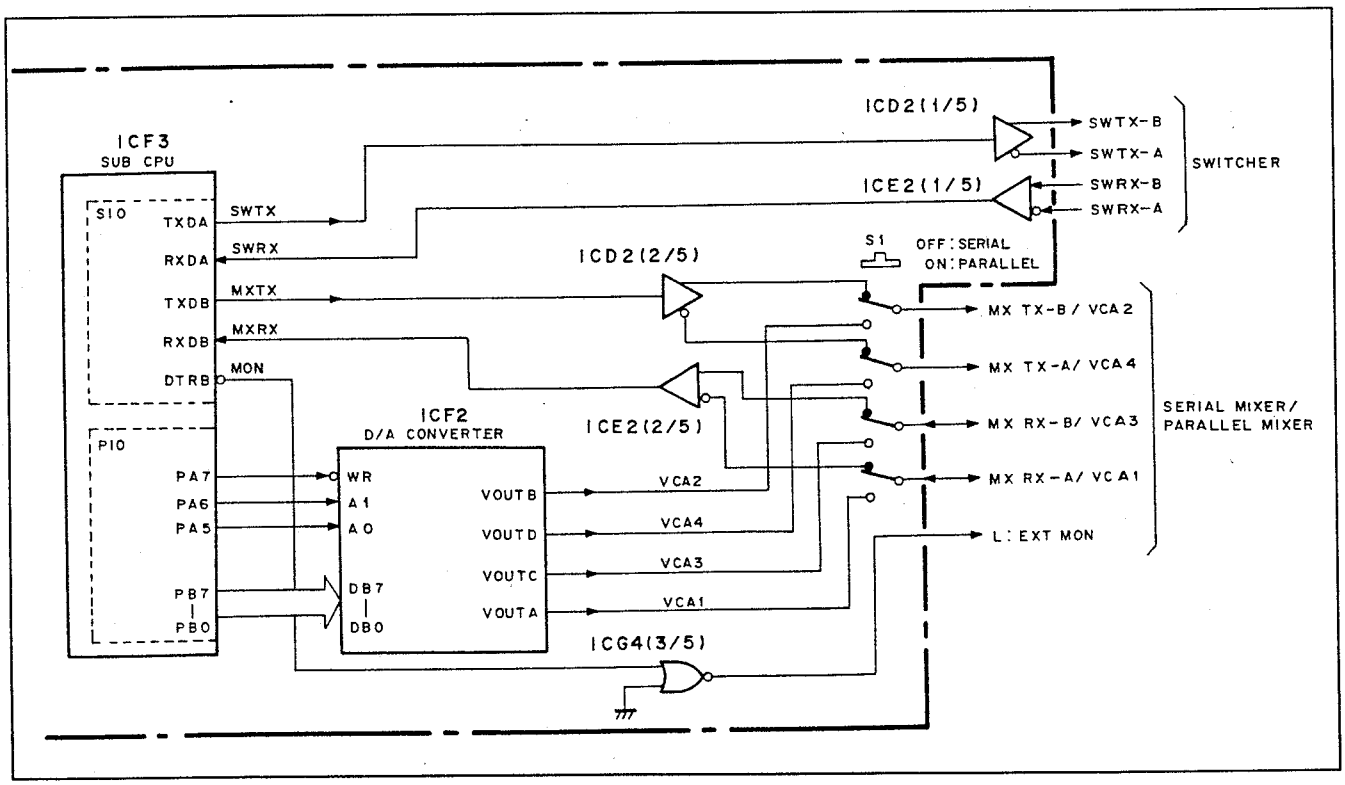


Fig. 6

<EEPROM>

The EEPROM (ICE3) is 128 bytes and has a serial input/output port. It is controlled via the PIO (Input/output ports: PA0–PA4) contained in the sub CPU. The EEPROM stores the setup data.

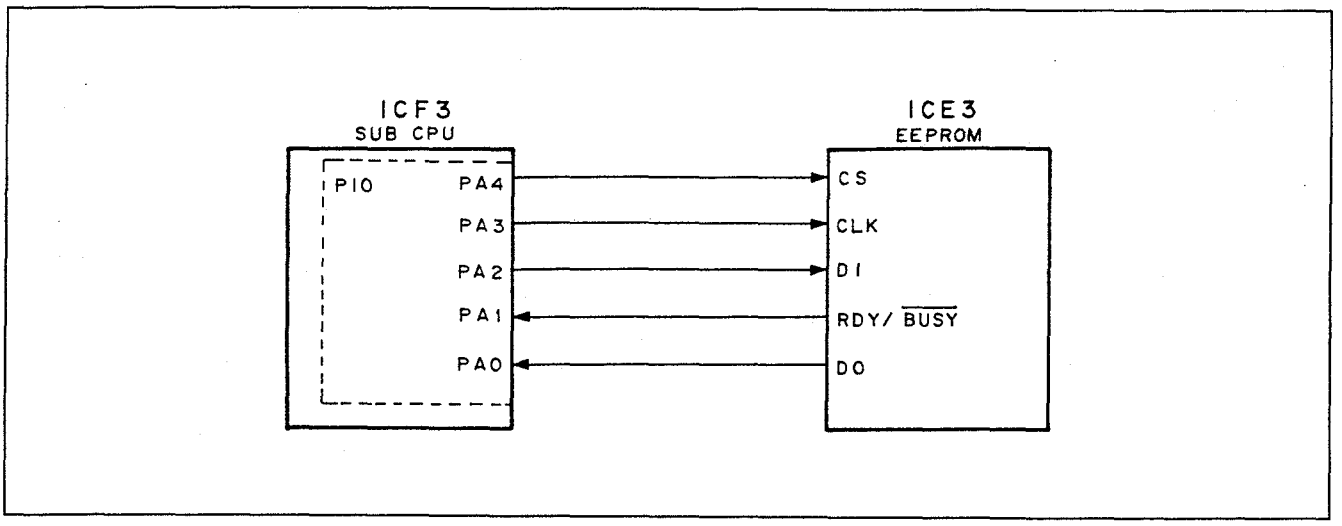


Fig. 7

<CTC of the Sub CPU>

The CTC contained in the sub CPU is input with the frame signal (–FRM) from the sync separator (ICH4), the interruption signal (INTR) from the dual port RAM (ICF5), and the timing clocks (CLK3 and CLK4) from the clock generator (ICD4).

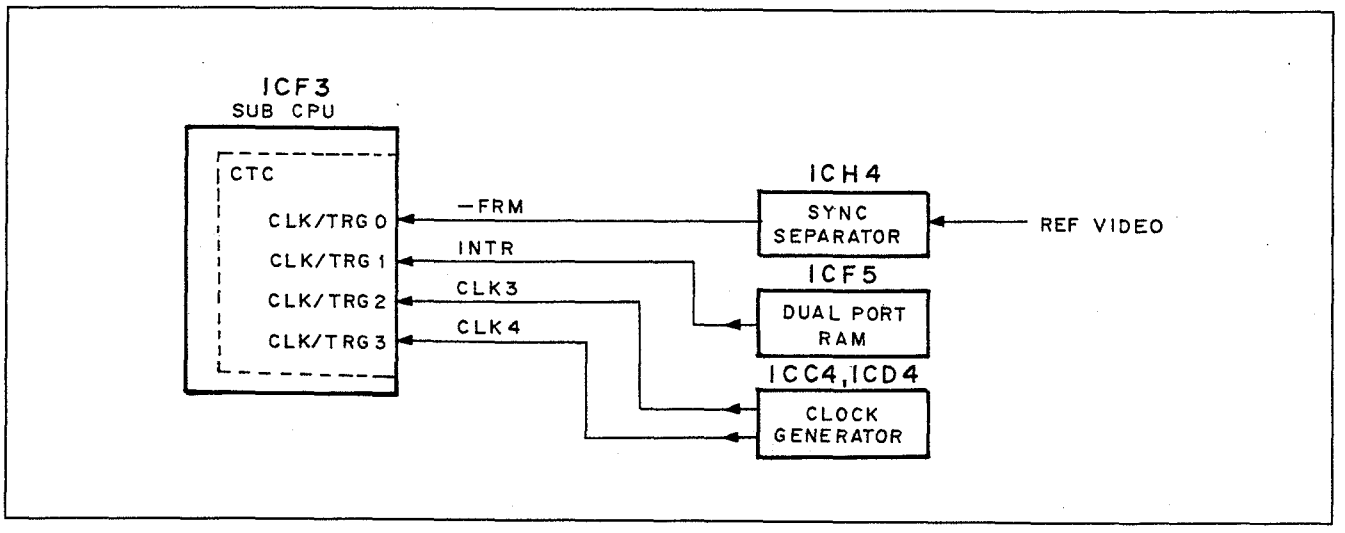


Fig. 8

<Memory of the Sub CPU>

A 32K bytes EPROM (ICG5) is used for the memory of the sub CPU. A part of the dual port RAM is used as the RAM of this CPU.

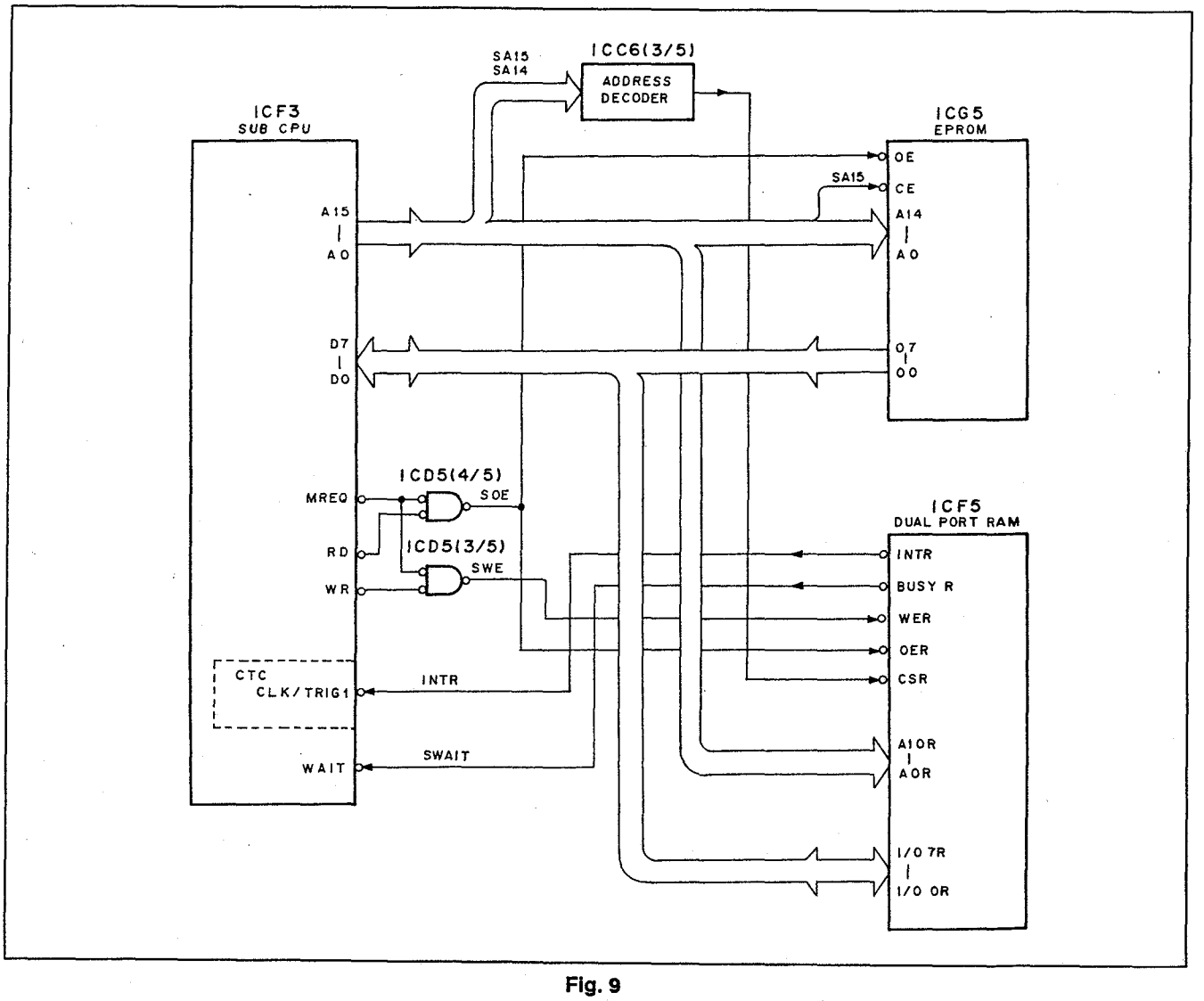


Fig. 9

<LED/Key/Switch Controls>

An I/O expander (ICG3) is used for controlling the LEDs, keys, and switches.

A source driver (ICG2) is connected to port A. The scan signals (SC0–SC7) are output from this port.

A LED driver (ICH2) is connected to port B. The LED lighting signals (LE0–LE7) corresponding to the scan signals are output from this port.

The key and switch signals (KY0–KY7), corresponding to the scan signal, are input to port C.

The 7-segment display LED data signals (LD0–LD6), corresponding to the scan signals and data latch signals (SEL0–SEL3), are output from port D.

The 7-segment display LED data latch signals (SEL0–SEL3) are output from port E.

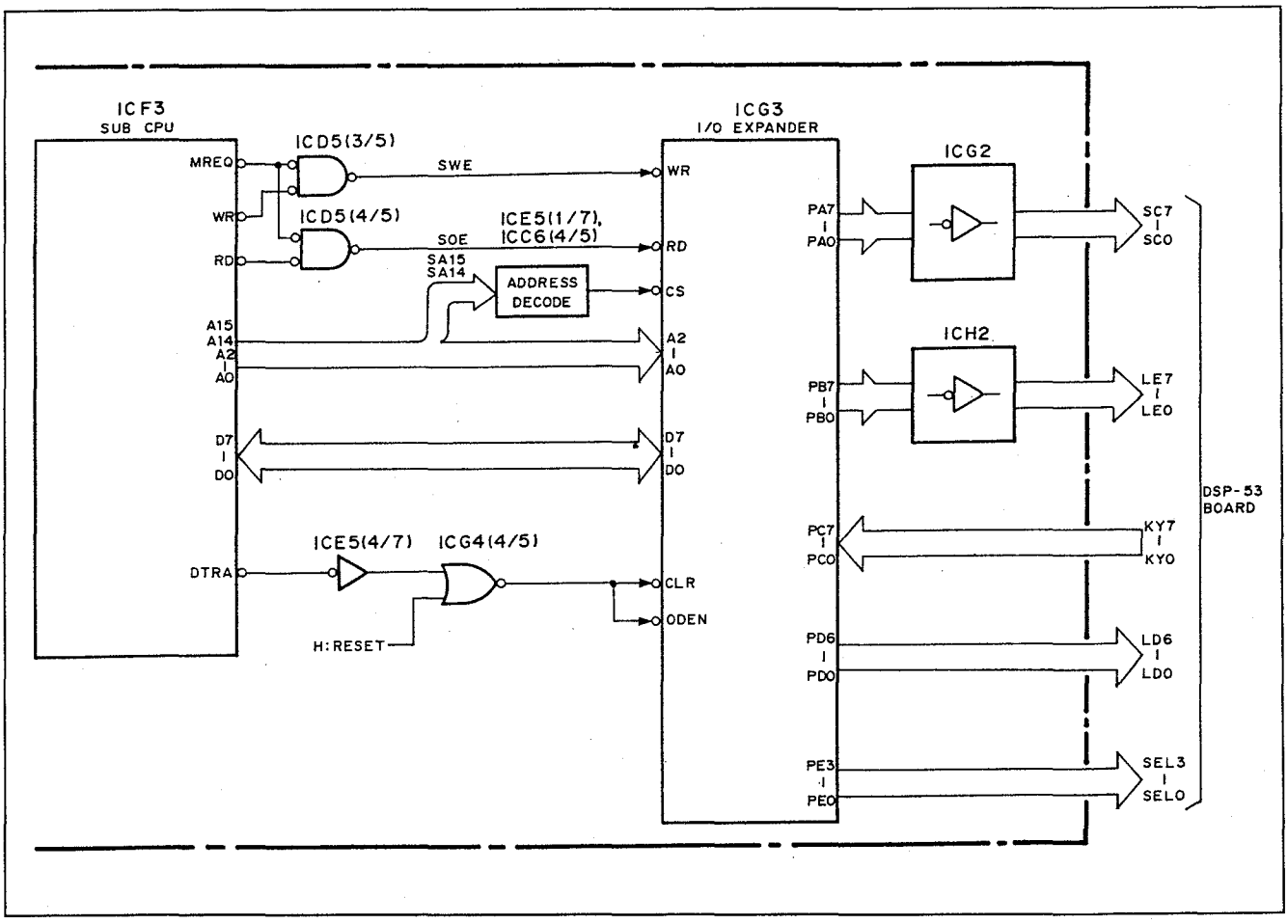


Fig. 10

<Sync Separator>

The sync separator (ICH4) extracts the frame signal (–FRM) from the reference video signal (REF, VIDEO) input from outside and supplies it to the CTCs contained in the main and sub CPUs.

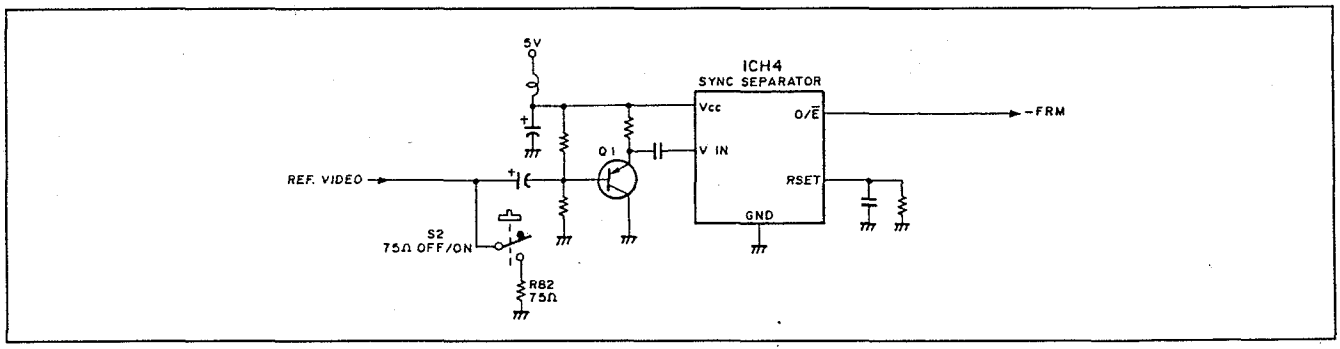


Fig. 11

<Clock Generator>

The clock generator (ICC4 and ICD4) frequency divides the CPU clock (6 MHz) input from the main CPU, and generates the serial communication clock (CLK1), the clock (CLK2) which sounds the buzzer, and the timing clocks (CLK3 and CLK4). The timing clocks are supplied to the main and sub CPUs and the external CTC (ICA4).

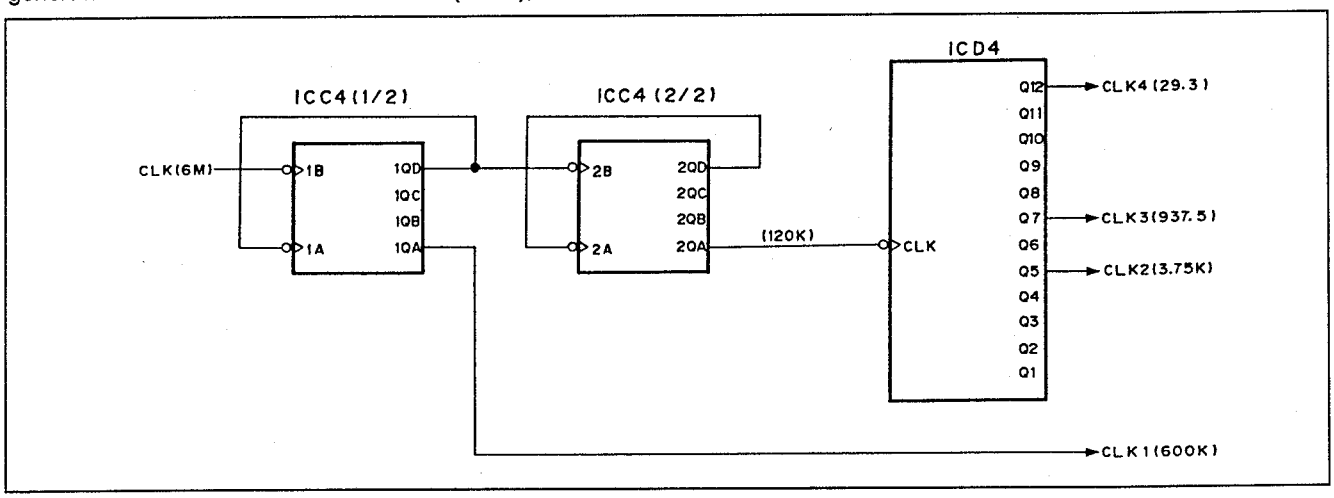


Fig. 12

<Reset Pulse Generator>

The reset pulse generator (ICE4 and ICE5) detects the rising edge and drop of the power supply voltage, and generates the reset pulse (RESET) to the main and sub CPUs.

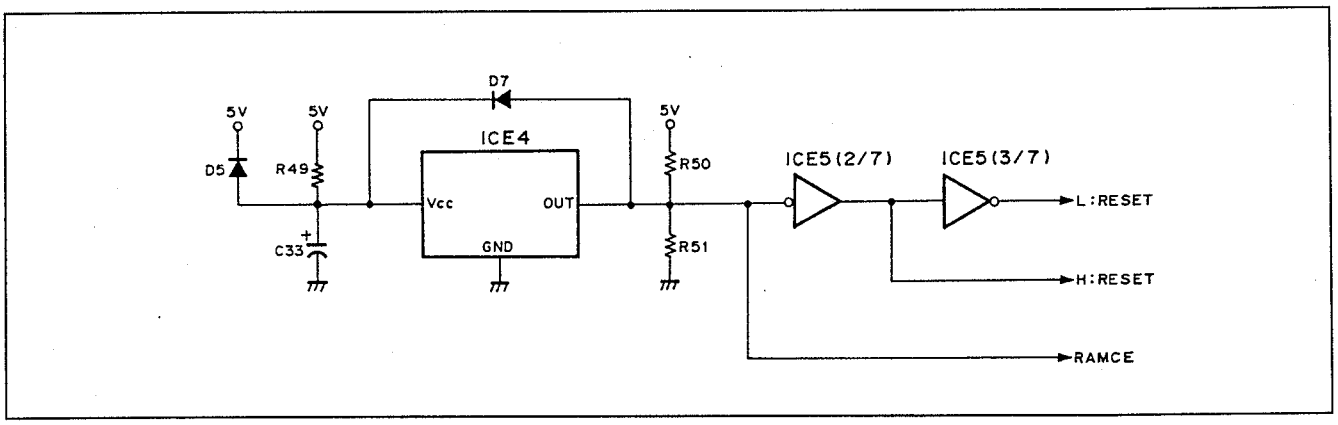


Fig. 13

<Power Supply Circuit>

The power supply circuit rectifies the secondary AC voltage supplied from the power supply transformer with the bridge diode (D1), stabilizes it at DC 5V with the 3-pin regulator (ICD1), and supplies it to all circuits.

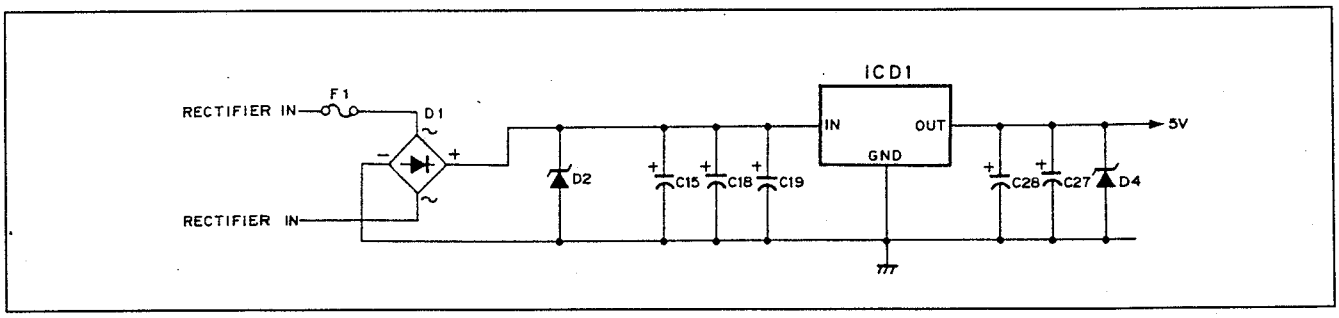


Fig. 14

2-9-2. DSP-53 Board

DSP-53 board has a display, keys, and slide switches. The LEDs are arranged on the matrix circuit of the scan signals (SC5 and SC6) and LED lighting signals (LE0–LE5). The keys and slide switches are arranged on the matrix circuit of the scan signals (SC5–SC7) and key/switch signals (KY0–KY7).

The 7-segment display LED is divided into four groups. A latch drivers (IC1, IC2, IC3, and IC4) is connected to each group. These latch drivers light up the 7-segment LEDs when the display data corresponding to the groups and scan signals are latched by the 7-segment display data signals (LD0–LD6) and the latch signals (SEL0–SEL3).

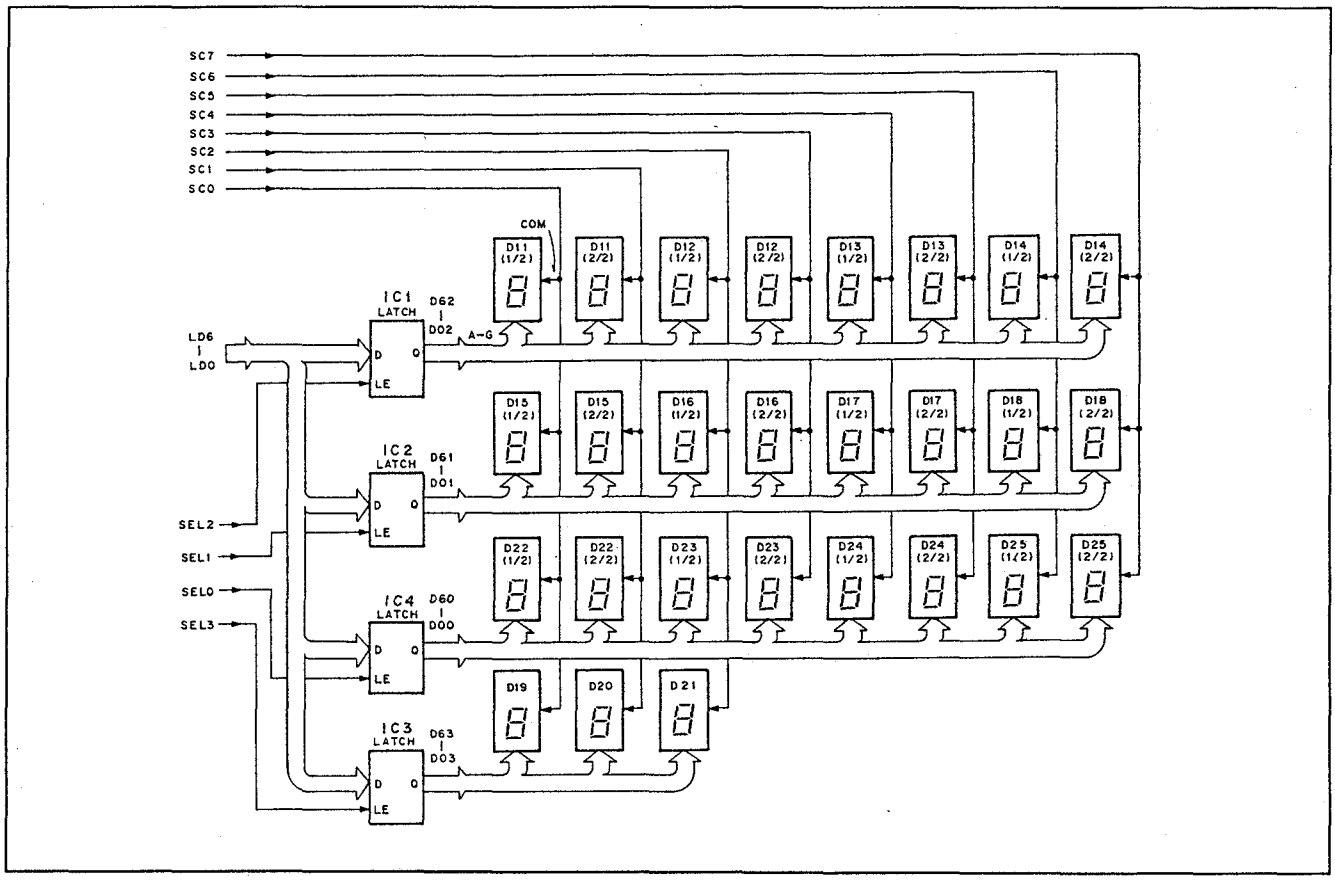


Fig. 15

2-9-3. Keyboard Assembly

The keyboard assembly is a keyboard for operating the unit. The LEDs are arranged on the matrix circuit of the scan signals (SC0–SC4) and the LED lighting signals (LE0–LE7). The key switches are arranged on the matrix circuit of the scan signals (SC0–SC4) and key/switch signals (KY0–KY7).

2-10. NOTES ON SPARE PARTS

2-10-1. Notes on Spare Parts

(1) Safety Related Components Warnig

Components marked with ⚠ on the schematic diagrams, exploded views and electricl spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

(2) Standardization of Parts

Spare parts supplied from Sony Parts Center may not always be identical with the parts which actually in use due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts".

This manual's exploded views and electrical spare parts list indicate the part numbers of "the standardized genuine parts at present."

(3) Stock of Parts

Parts marked with "o" in the SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

(4) Units for Capacitors, Inductors and Resistors

The following units may be assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitor	: μF
Inductor	: μH
Resistor	: Ω

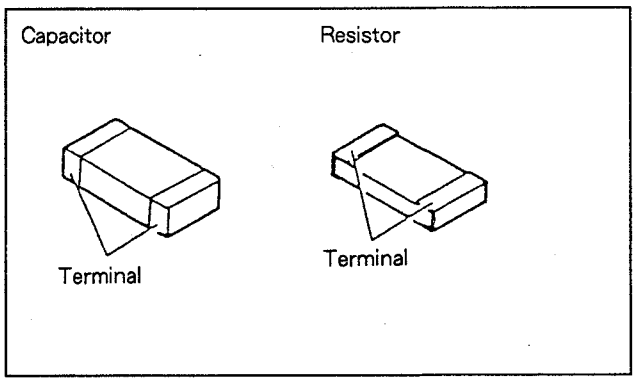
2-10-2. Replacement Procedure of Chip Parts

Required Tools

Soldering iron	: 20W If possible, use the soldering iron tip heat-controller at 270 ± 10℃
Braided wire	: SOLDER TAUL or equivalent Sony part No. 7-641-300-81
Solder	: 0.6mm dia. is recommended.
Tweezers	

Soldering Conditions

Soldering iron temperature : 270 ± 10℃
Soldering time : Less than two seconds per a pin



Resistor and Capacitor Replacement

1. Place the soldering iron tip onto the chip part and heat it up until the solder is melted. When the solder is melted, slide the chip part aside.
2. Make sure that there is no pattern peeling, damage and/or bridge around the desoldering position.
3. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
4. Place new chip part in the desired position and solder both ends.

NOTE: Do not use the chip part again once it has been removed.

IC Replacement

1. Using the braided wire, "SOLDER TAUL" Sony Part No. 7-641-300-81, remove the solder around the pins of the IC-chip to be removed.
2. When heating up the pins, remove the pins one by one using sharp-pointed tweezers.
3. Make sure that there is no pattern peeling, damage and/or bridge around the desoldering positions.
4. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
5. Place new chip part in the desired position and solder the pins.

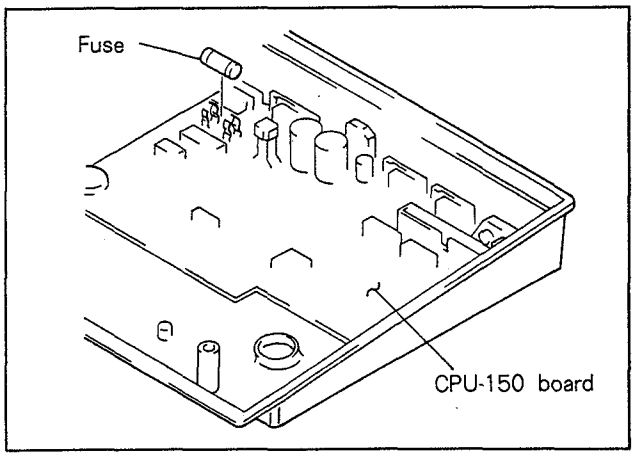
2-10-3. Replacement of the Fuse

The fuse is mounted on CPU-150 board.
This fuse is melted when the too much electric current flows by unusual instrument.
Before replacement of the fuse, check the trouble of circuit.

Replacement

Before replacement of fuse, take out the cause of short for unit.

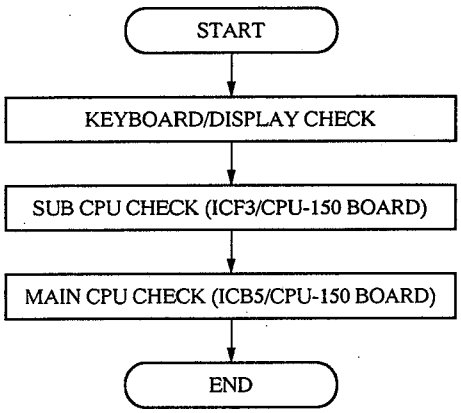
1. Remove the upper panel
   (Refer to 2-1. REMOVAL OF MAIN BLOCK.)
2. Replace the fuse on CPU-150 board with a new one.
   Fuse: Glass tube 1.6A 125V (For US)
   Sony Part No.: 1-532-742-11
   Fuse: Time-lag 1.6A 250V (For EK)
   Sony Part No.: 1-532-259-11



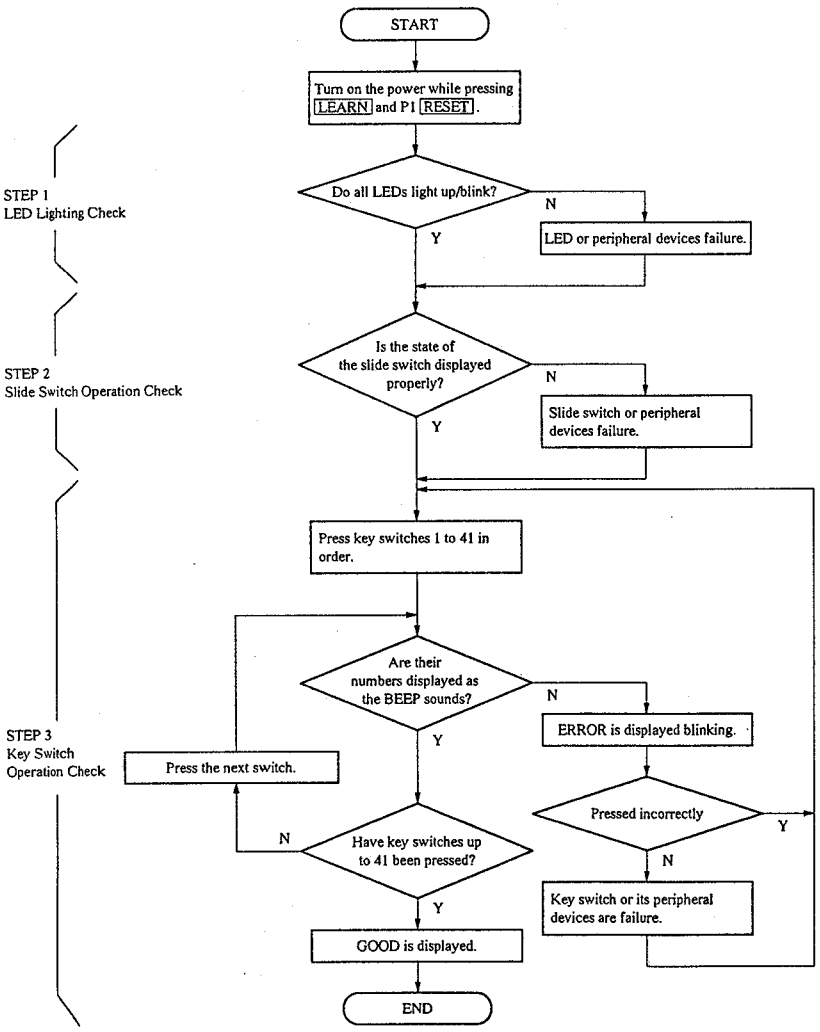
SECTION 3
SELF-DIAGNOSIS

PVE-500 requires no electrical adjustments.
Operational checks are carried out using simple tools and the self-diagnosis software.

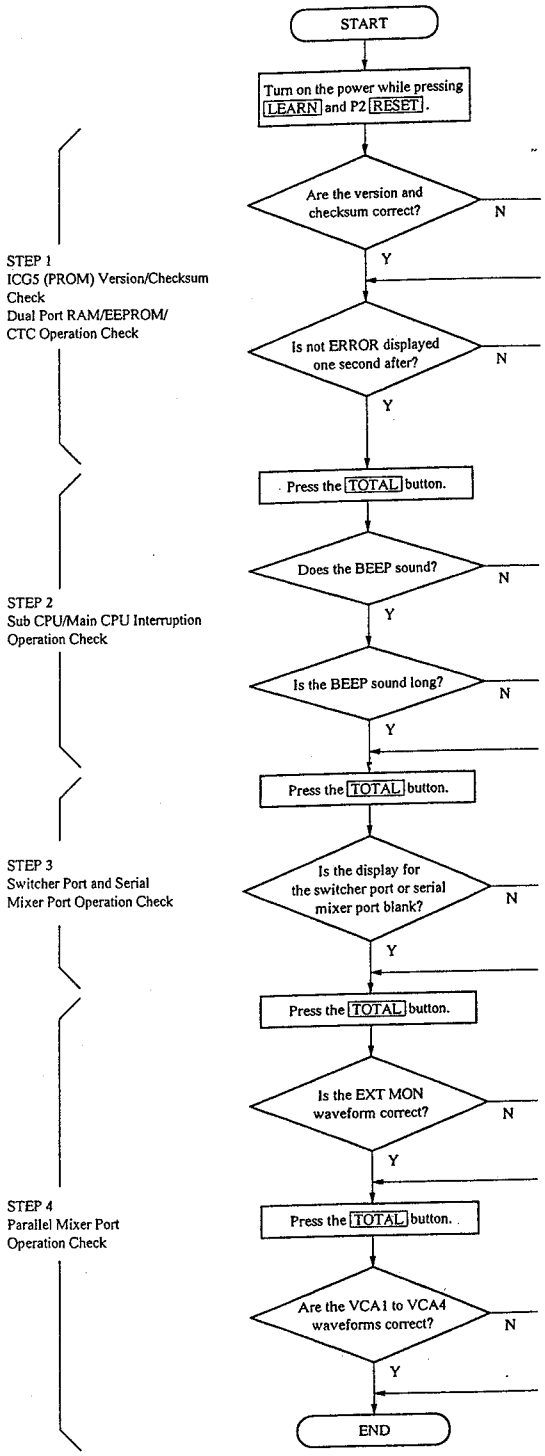
3-1. FLOWCHART



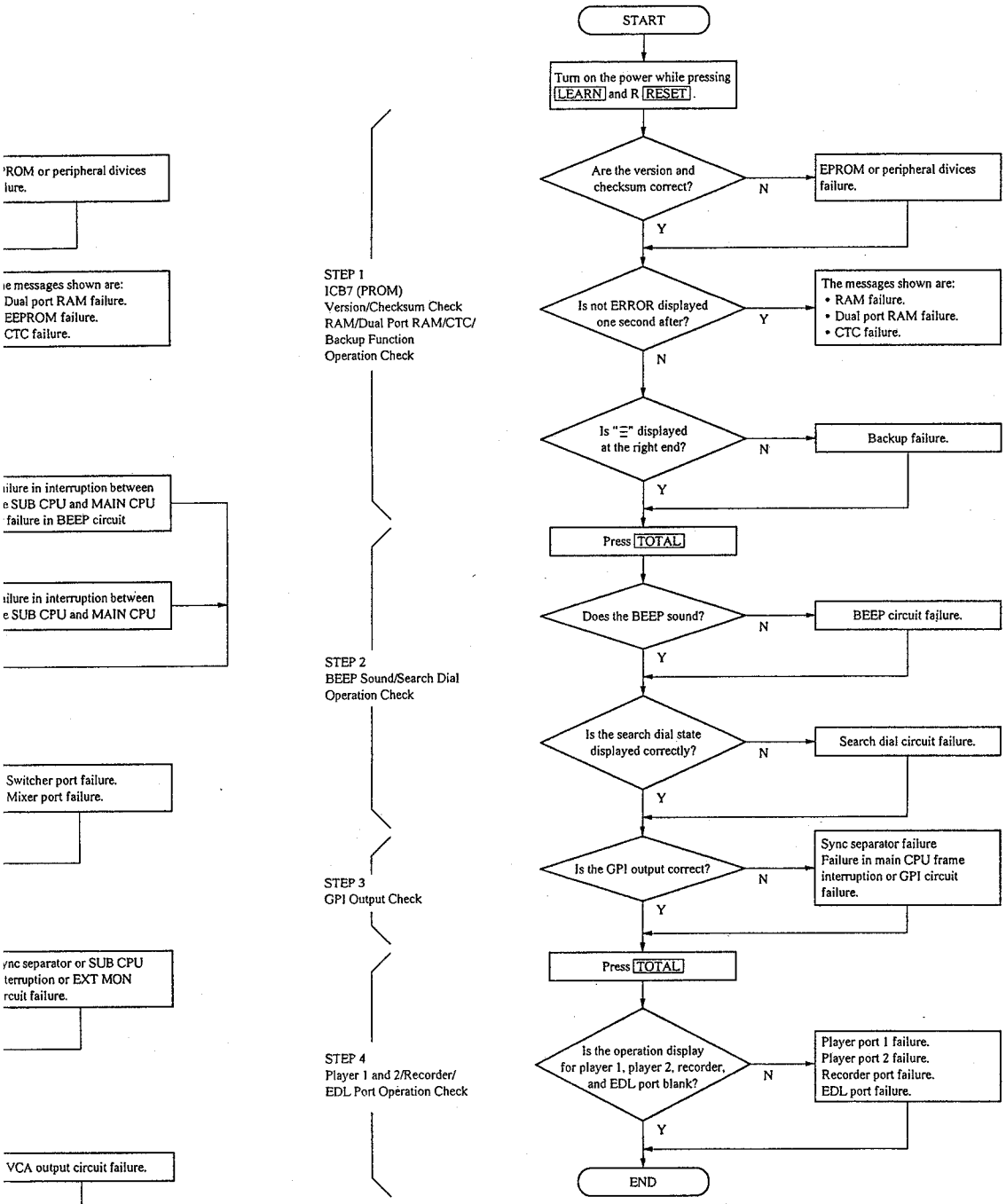
KEYBOARD/DISPLAY CHECK



SUB CPU CHECK (ICF3/CPU-150 BOARD)



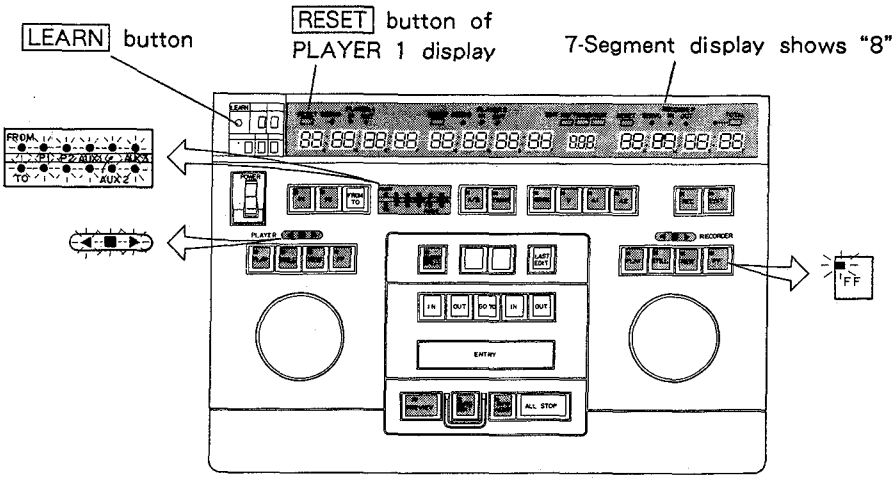
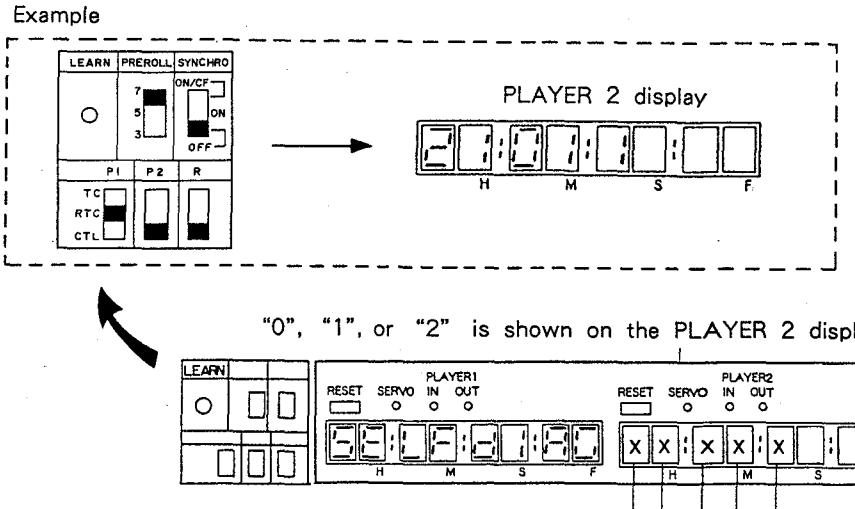
MAIN CPU CHECK (ICB5/CPU-150 BOARD)



3-5. KEYBOARD/DISPLAY CHECK

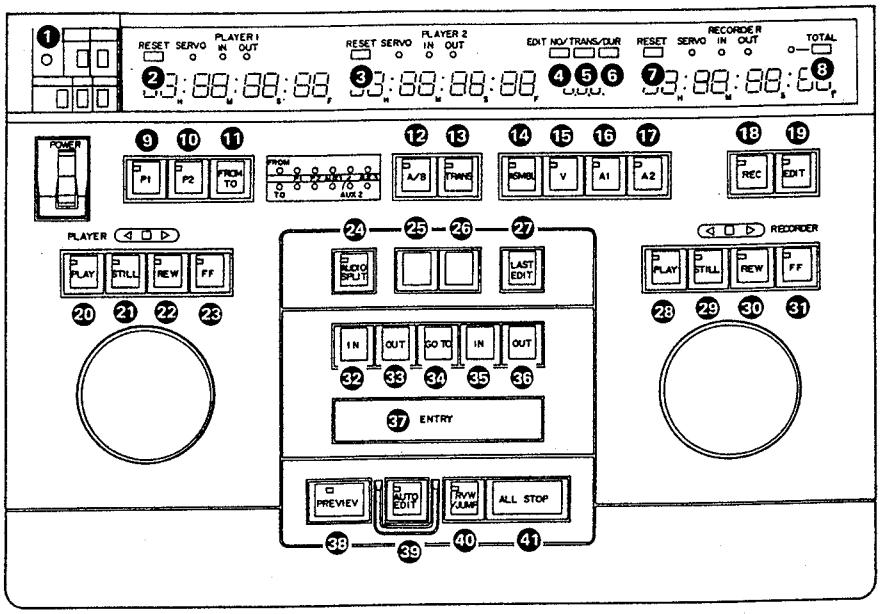
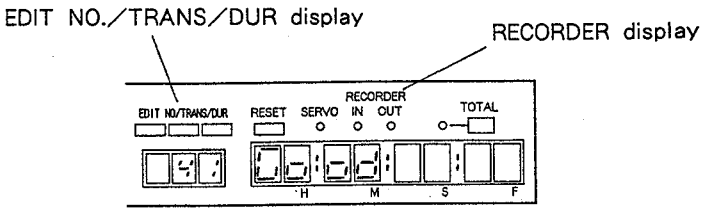
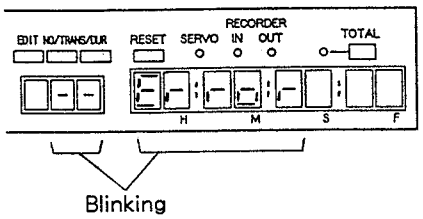
Checks: STEP 1. LED Lighting Check
STEP 2. Slide Switch Check
STEP 3. Key Switch Operation Check

NOTE The SUB CPU must be operating properly for these checks to be carried out.
The MAIN CPU must also not be overrunning.

<table>
<tr><th>Procedure and Diagnosis</th><th>Checks</th></tr>
<tr><td>STEP 1.
LED Lighting Check
• While pressing the [LEARN] button and [RESET] button on the PLAYER 1 display together, turn on the POWER switch.</td><td>All LEDS light up for approximately 10 seconds and then blink for approximately 5 seconds.
 
</td></tr>
<tr><td>STEP 2.
Slide Switch Check</td><td>After blinking, the slide switch switching state is shown on the PLAYER 2 display.
 

"0", "1", or "2" is shown on the PLAYER 2 display.

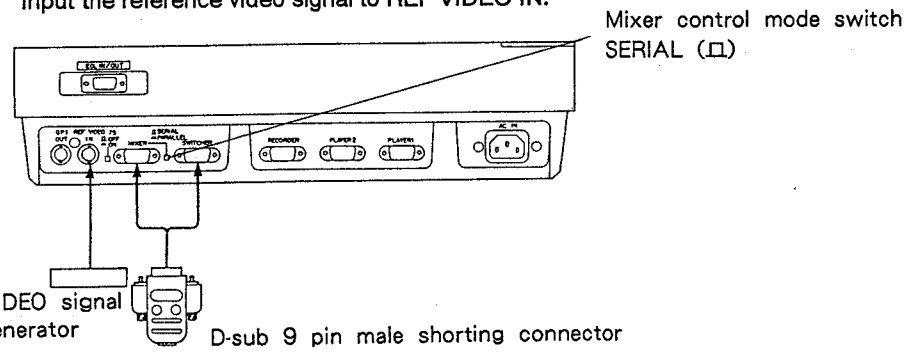
<table>
<tr><th>Switch / Display</th><th>1</th><th>0</th><th>2</th></tr>
<tr><td>PREROLL</td><td>3</td><td>5</td><td>7</td></tr>
<tr><td>SYNCHRO</td><td>OFF</td><td>ON</td><td>ON/CF</td></tr>
<tr><td>P1 EDIT REF.</td><td>CTL</td><td>RTC</td><td>TC</td></tr>
<tr><td>P2 EDIT REF.</td><td>CTL</td><td>RTC</td><td>TC</td></tr>
<tr><td>R EDIT REF.</td><td>CTL</td><td>RTC</td><td>TC</td></tr>
</table></td></tr>
</table>

Procedure and Diagnosis	Checks
STEP 3. Key Switch Operation Check • Press the key switches in the order shown in the diagram on the right.	 The BEEP will sound when the keys are pressed in order. At the same time, 01 through 41 will be displayed on the EDIT NO./TRANS/DUR display. When 41 is displayed, "Good" will be displayed on the RECORDER display. 
(When an error occurs)	The BEEP will not sound if an error has occurred in the operations of the key switches or they have been pressed in the incorrect order. In this case, "Error" will be displayed on the RECORDER display. If the switches have been pressed in the incorrect order, start from the beginning again. 

3-6. SUB CPU CHECK (ICF3/CPU-150 BOARD)

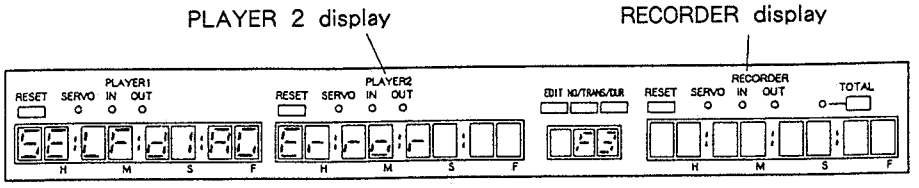
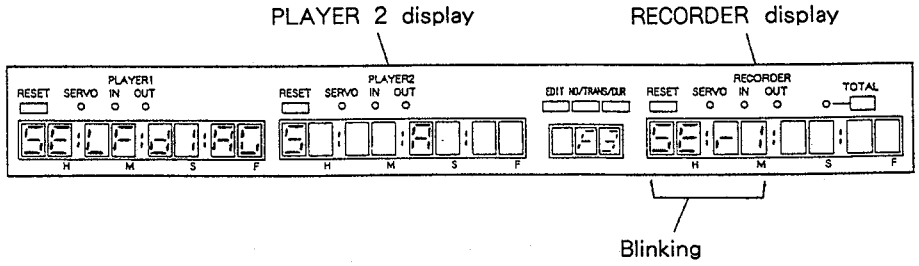
Checks: STEP 1. ICG5 (PROM) Version/Checksum Check
Dual Port RAM/EEPROM/CTC Operation Check
STEP 2. SUB CPU/MAIN CPU Interruption Operation Check
STEP 3. Switcher Port and Serial Mixer Port Operation Check
STEP 4. Parallel Mixer Port Operation Check

Preparation: (1) Mixer control mode switch:SERIAL (⊓)
(2) Connect the D-sub 9 pin male shorting connector to the switcher and mixer connectors.
NOTE Before connecting, set the mixer control mode switch to SERIAL.
(3) Input the reference video signal to REF VIDEO IN.



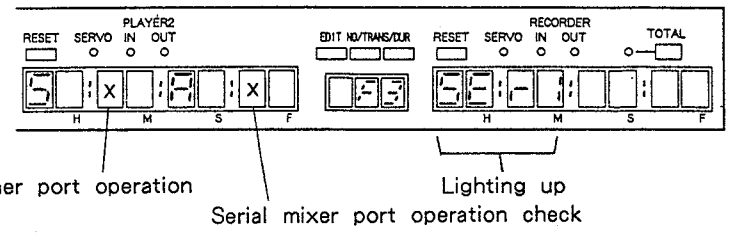
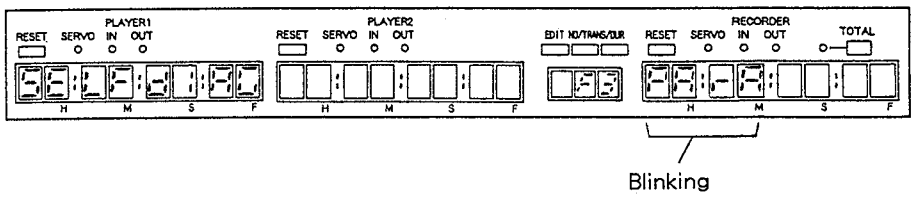
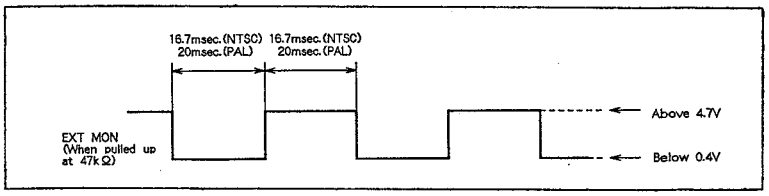
NOTE The keyboard/display must be operating properly for these checks to be carried out.
The MAIN CPU must also not be overrunning.

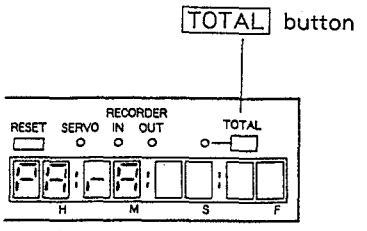
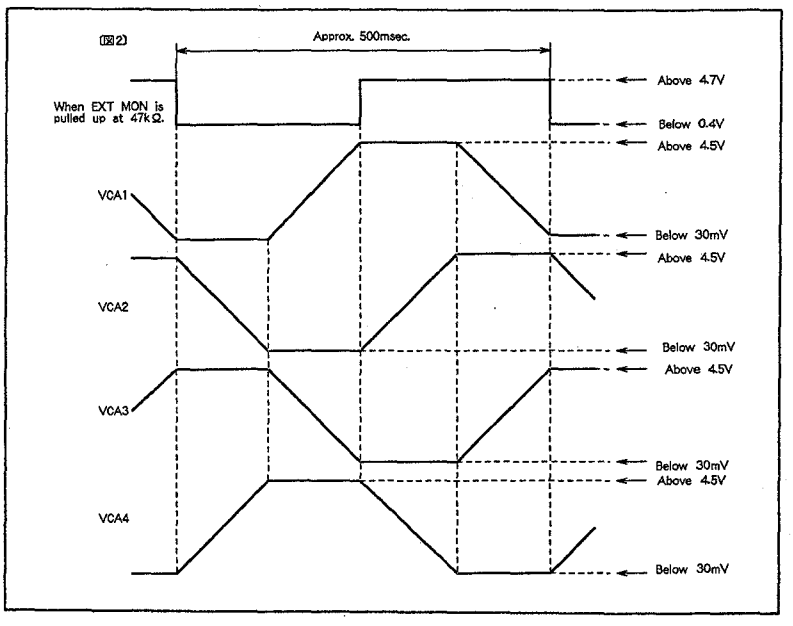
Procedure and Diagnosis	Checks
STEP 1. ICG5 (PROM) Version/ Checksum Check Dual Port RAM/EEPROM /CTC Operation Check • While pressing the [LEARN] button and [RESET] button on the PLAYER 2 display together, turn on the POWER switch.	The display will show the following. EEPROM Operations: "F3" will be displayed. It will blink during the EEPROM operation check. **NOTE** If the power switch is turned off while it is blinking, the setup data may be destroyed. [RESET] button of PLAYER 2 display [LEARN] button SUB CPU PROM Version Same as the one on the ICG5 label SUB CPU PROM Checksum Same as the one on the ICG5 label Examples of characters printed on the label E500SVXXX CPU-150 ICG5 #ZZZ-ZZ YYYY © SONY 1993

Procedure and Diagnosis	Checks
(When an error occurs)	If an error is detected in the dual port RAM/EEPROM/CTC operation check, "Error" will be displayed on the PLAYER 2 display after one second, and the error code will be displayed on the RECORDER display.  Error Code Table
STEP 2. SUB CPU/MAIN CPU Interruption Operation Check • Press the [TOTAL] button.	Check that a long BEEP is sounded. 
(When an error occurs)	If there is no BEEP sound or the BEEP is short, an error has occurred.

Error Code	Contents
F 5 r 8 4 2 1	ICF5 Dual port RAM R port operation failure
E 3 1 6 9 1 1	ICF3 EEPROM operation failure
F 3 C t C 0 t	ICF3 CTC CH-0 timer operation failure (No interruption)
F 3 C t C 1 t	ICF3 CTC CH-1 timer operation failure (No interruption)
F 3 C t C 2 t	ICF3 CTC CH-2 timer operation failure (No interruption)
F 3 C t C 3 t	ICF3 CTC CH-3 timer operation failure (No interruption)
F 3 C t C 2 t	ICF3 CTC CH-2 counter operation failure (Number of interruptions)
F 3 C t C 3 t	ICF3 CTC CH-3 counter operation failure (No interruption)

Symptom	Cause
No BEEP	• Failure in the interruption from the SUB CPU to the MAIN CPU (ICB5, CTC CH-1 counter operation) • Failure in the BEEP circuit
BEEP is short	• Failure in the interruption from the MAIN CPU to the SUB CPU (ICF3, CTC CH-1 counter operation)

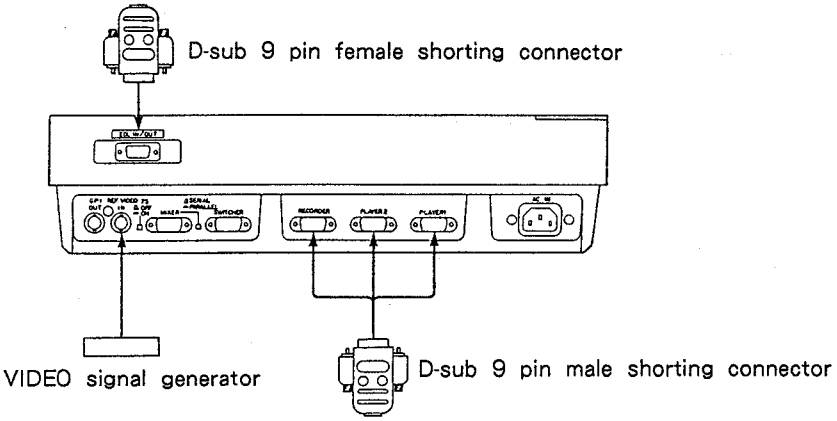
Procedure and Diagnosis	Checks
STEP 3. Switcher Port and Serial Mixer Port Operation Check. • Press the [TOTAL] button (When an error occurs)	A long BEEP will sound and the "SFrI" on the RECORDER display will stop blinking. At this time, make sure that the 3rd and 7th digit on the PLAYER 2 display are blank. When an error is detected, the error code for the switcher port will be displayed at the 3rd digit of the PLAYER 2 display and the error code for the mixer control will be displayed at the 7th digit.  Switcher port and serial mixer port displays / Content □ (Blank) — OK r — No reception interruption d — Data is received but does not match. t — No transmission reception. u — System error
STEP 4. Parallel Mixer Port Operation Check • Disconnect the D-sub 9 pin male shorting connector from the mixer connector. • Set the mixer control mode switch to PARALLEL. • Press the [TOTAL] button. (When an error occurs)	A long BEEP will sound and "PArA" will be displayed blinking on the RECORDER display.  Also make sure that the following waveform are displayed at EXT MON OUT (Pin 5 of CN5) of the parallel mixer. This signal has the same timing as the frame signal (TP2/CPU-150 board) separated from the reference VIDEO signal. **NOTE** As EXT MON OUT is a open collector, it must be pulled up at several 10 kΩ. If it is not pulled up, measure the reversed waveform of Pin 8 of ICG4.  If the above waveform is not output, the following problems may be suspected. • Serial separator failure. • Failure in the SUB CPU frame interruption (ICF3, CTC, CH-0 counter operations) • EXT MON circuit failure.

Procedure and Diagnosis	Checks
• Press the TOTAL button again.	The "PArA" on the RECORDER display stops blinking and lights up.  Make sure that the following waveforms are displayed at EXT MON OUT (Pin 5 of CN5), VCA1 through VCA4 OUT (Pins 2, 3, 7, and 8 of CN5). 
(When an error occurs)	If the above waveforms are not output, the following problems may be suspected. • Failure in the ICF2 D/A converter circuit

3-7. MAIN CPU CHECK (ICB5/CPU-150 BOARD)

Checks: STEP 1. ICB7 (PROM) Version/Checksum Check
RAM/Dual Port RAM/CTC/Backup Function Operation Check
STEP 2. BEEP Sound/Search Dial Operation Check
STEP 3. GPI Output Check
STEP 4. PLAYER 1 and 2/Recorder/EDL Port Operation Check

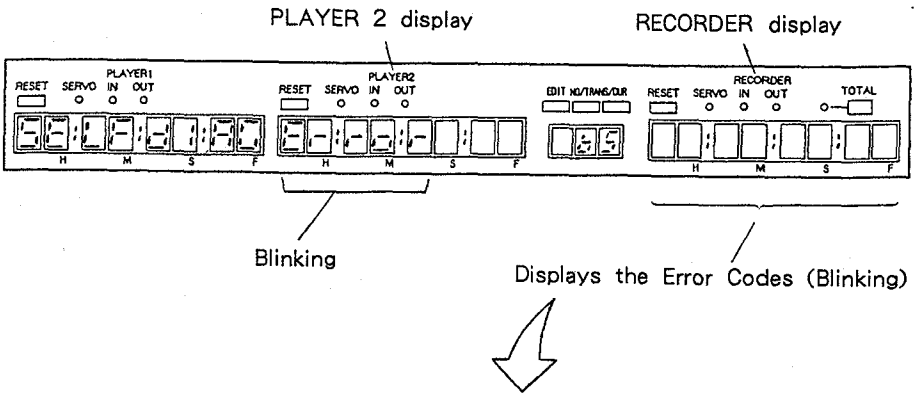
Preparation: (1) Connect the D-sub 9 pin male shorting connector to the connectors for player 1, player 2, and recorder.
(2) Connect the D-sub 9 pin female shorting connector to the EDL IN/OUT connector.
(3) Input the reference video signal to REF VIDEO IN.



NOTE The keyboard/display, SUB CPU must be operating properly for this check to be carried out.

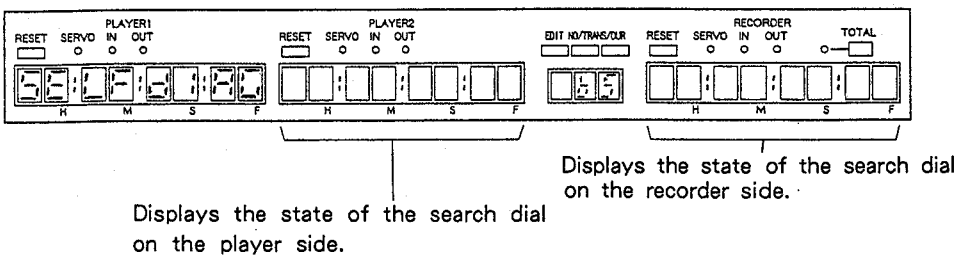
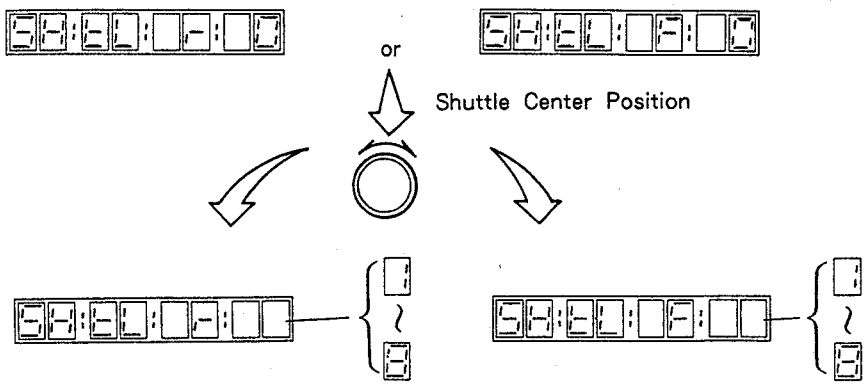
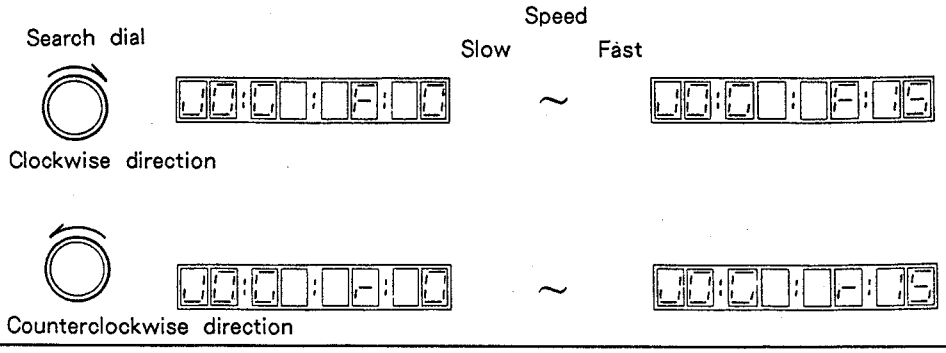
Procedure and Diagnosis	Checks
STEP 1. ICB7 (PROM) Version/ Checksum Check RAM/Dual Port RAM/ CTC/Backup Function Operation Check • While pressing the [LEARN] button and [RESET] button on the RECORDER display together, turn on the POWER switch.	The display will show the following. [LEARN] button [RESET] button of RECORDER display MAIN CPU PROM Version Same as the one on the ICB7 label MAIN CPU PROM Checksum Same as the one on the ICB7 label Examples of characters printed on the label E500MVXXX CPU-150 ICB7 #ZZZ-Z YYYY © SONY 1993 RAM Backup Make sure that " ☰ " is displayed. **NOTE** If it is not displayed, it is not backed up properly.

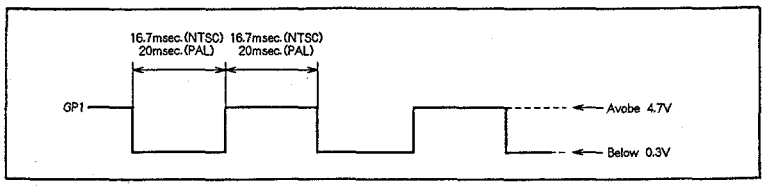
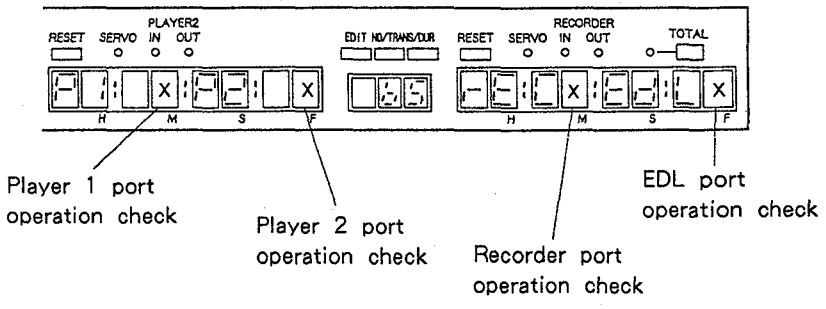
Procedure and Diagnosis	Checks
(When an error occurs)	If an error is detected in RAM/dual port RAM/CTC operation check, "Error" will be displayed on the PLAYER 2 display after one second, and the error code will be displayed on the RECORDER display.



Error Code Table

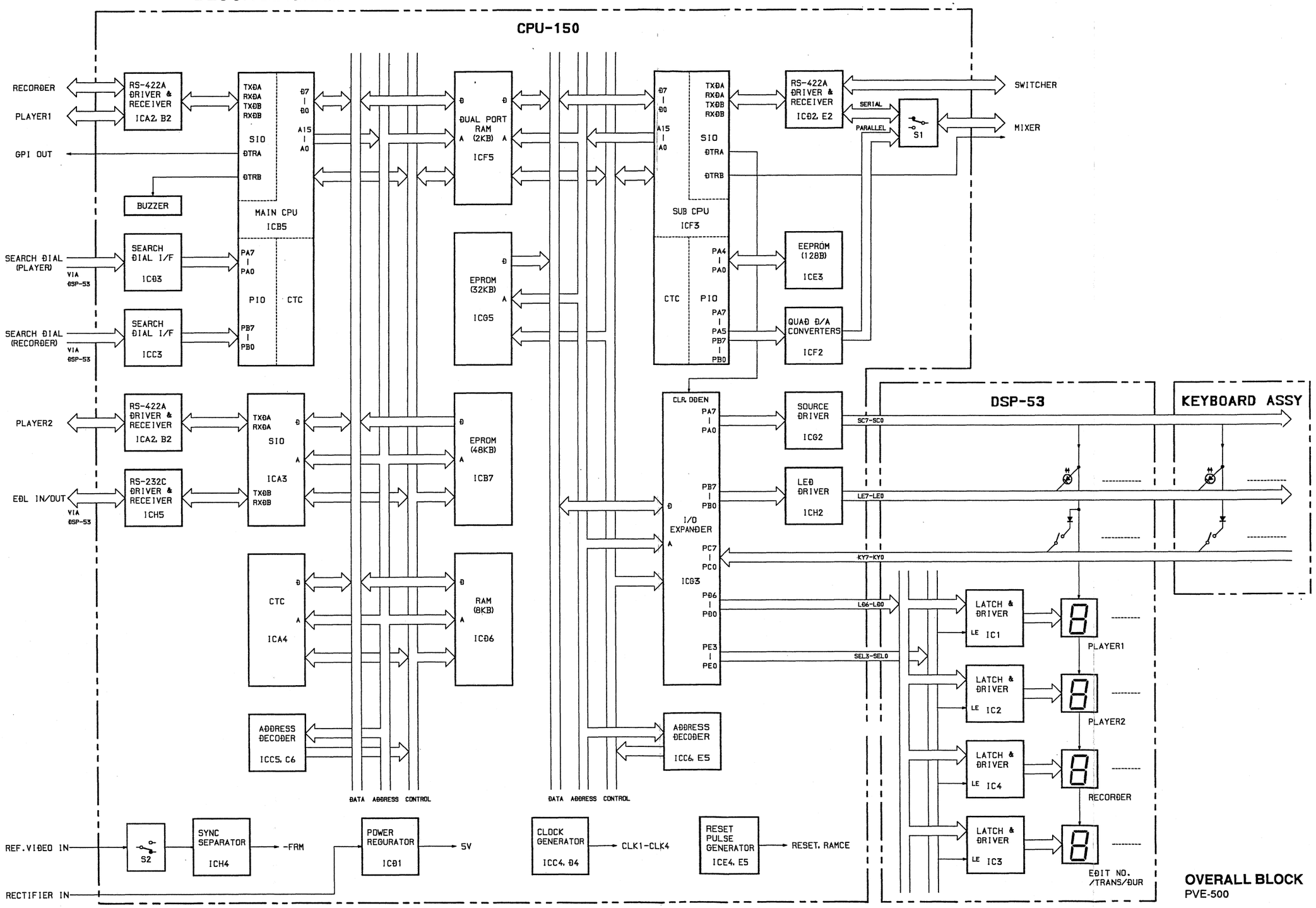
Error Code		Contents	
d 6	5 8 6 4	ICD6	RAM operation failure
F 5 L	8 4 2 1	ICF5	Dual port RAM L port operation failure
b 5	C t C 0 t	ICB5	CTC CH-0 timer operation failure (No interruption)
b 5	C t C 1 t	ICB5	CTC CH-1 timer operation failure (No interruption)
b 5	C t C 2 t	ICB5	CTC CH-2 timer operation failure (No interruption)
b 5	C t C 3 t	ICB5	CTC CH-3 timer operation failure (No interruption)
A 4	C t C 0 t	ICA4	CTC CH-0 timer operation failure (No interruption)
A 4	C t C 1 t	ICA4	CTC CH-1 timer operation failure (No interruption)
A 4	C t C 2 t	ICA4	CTC CH-2 timer operation failure (No interruption)
A 4	C t C 3 t	ICA4	CTC CH-3 timer operation failure (No interruption)
b 5	C t C 2 c	ICB5	CTC CH-2 counter operation failure (Number of interruptions)
b 5	C t C 3 c	ICB5	CTC CH-3 timer operation failure (No interruption)
A 4	C t C 0 c	ICA4	CTC CH-0 counter operation failure (Number of interruptions)
A 4	C t C 1 c	ICA4	CTC CH-1 counter operation failure (Number of interruptions)
A 4	C t C 2 c	ICA4	CTC CH-2 counter operation failure (Number of interruptions)
A 4	C t C 3 c	ICA4	CTC CH-3 counter operation failure (Number of interruptions)

Procedure and Diagnosis	Checks
STEP 2. BEEP Sound/Search Dial Operation Check • Press the TOTAL button.	A short BEEP will sound and the state of the search dial on the player and recorder sides will be displayed.
(When an error occurs)	If there is no BEEP sound, failure in the BEEP circuit may be suspected.
	
[Shuttle Mode] • Set the right and left dials to the shuttle mode.	Check the display while rotating the search dial. According to the angle, the state of the search dial on the player side will be displayed on the PLAYER 2 display and that on the recorder side will be displayed on the RECORDER display.
	
	NOTE If the search dial is on other positions in the shuttle mode when the power is on, DISABLE will be displayed until it is returned to the center.
[JOG Mode] • Set the right and left search dials to the JOG mode.	Check the display while rotating the search dial. According to the speed at which the search dial is rotated, the state of the search dial on the player side will be displayed on the PLAYER 2 display and that on the recorder side will be displayed on the RECORDER display.
	

<table>
<tr><th>Procedure and Diagnosis</th><th>Checks</th></tr>
<tr><td>STEP 3.
GPI Output Check</td><td>Make sure that the following waveform is displayed at GPI OUT.
This signal has the same timing as the frame signal (TP2/CPU-150 board) separated from the reference VIDEO signal.
 
</td></tr>
<tr><td>(When an error occurs)</td><td>If the above waveform is not output, the following problems may be suspected.
• Sync separator failure.
• Failure in the main CPU frame interruption (ICB5), CTC0 CH-0 counter operation
• GPI circuit failure.</td></tr>
<tr><td>STEP 4.
PLayer 1 and 2/Recorder /EDL Port Operation Check
• Press the [TOTAL] button.</td><td>A short BEEP will sound and the display will show the following.
Make sure that the 4th and 8th digits of the PLAYER 2 display and RECORDER display are blank.
 
</td></tr>
<tr><td>(When an error occurs)</td><td>When an error is detected, the error code will be displayed.
<table>
<tr><th>Player 1 Port/Player 2 Port/recorder Port/EDL Port Displays</th><th>Contents</th></tr>
<tr><td>[ ] (Blank)</td><td>OK</td></tr>
<tr><td>[r]</td><td>No reception interruption</td></tr>
<tr><td>[d]</td><td>Data is received but does not match.</td></tr>
<tr><td>[t]</td><td>No transmission interruption</td></tr>
<tr><td>[u]</td><td>System error</td></tr>
</table></td></tr>
</table>

SECTION 4
BLOCK DIAGRAM

OVERALL



OVERALL BLOCK
PVE-500

SECTION 5
SCHEMATIC DIAGRAMS AND BOARD LAYOUTS

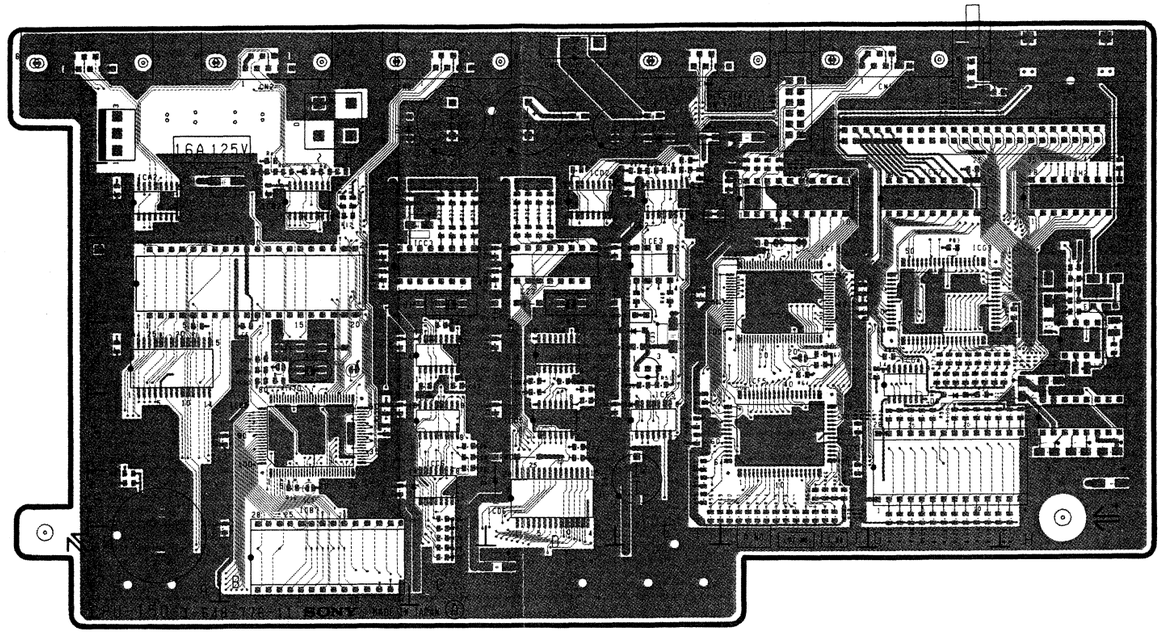
BOARD	Function	Page
AC-1	Power unit	5-8
CPU-150	System Control	5-2
DSP-53	Display & Key Switch	5-4
KEYBOARD ASSY		5-7
PTC-32	Search Dial	5-6
FRAME WIRING		5-9

注意：⚠印のついた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

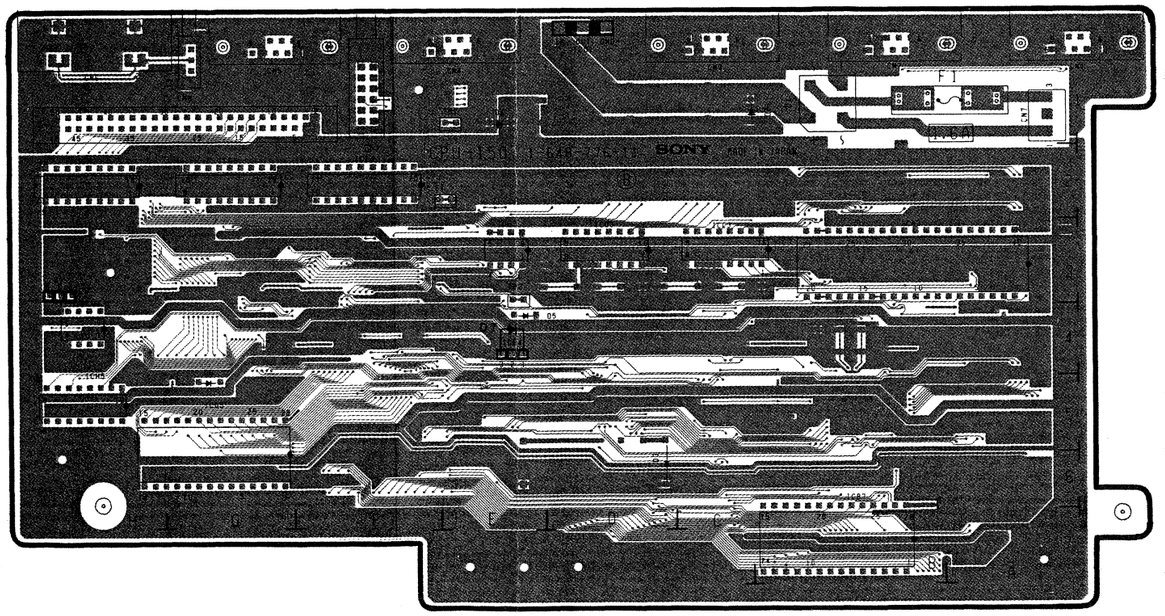
NOTE：⚠-marked components are critical to safety. Replace only with same components as specified.

5-1

CPU-150 ; SYSTEM CONTROL



CPU-150 – A SIDE –
1-648-776-11
PVE-500

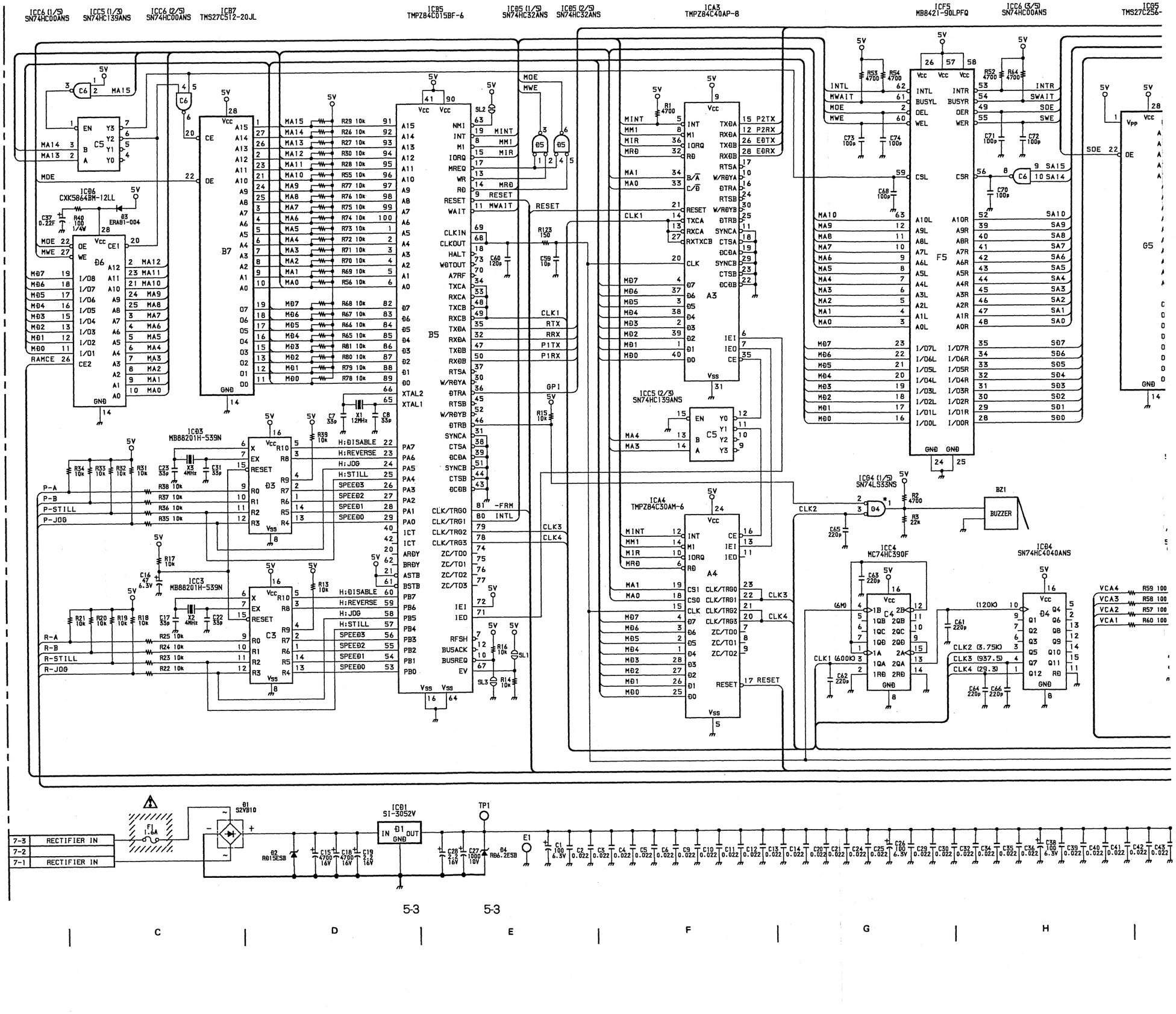


CPU-150 – B SIDE –
1-648-776-11
PVE-500

CPU-150 (1-648-776-11)

BZ1	A-7	Q1	H-3
CN1	A-1	S1	F-1
CN2	B-1	S2	G-1
CN3	C-1		
CN4	E-1	TP1	E-1
CN5	G-1		
CN6	H-1	TP2	E-3
CN7	A-1	X1	B-4
CN8	G-1	X2	C-3
		X3	D-3
D1	B-1		
D2	C-1	* : B SIDE	
D3	D-6		
D4	E-1		
D5	E-4		
D6	G-5		
D7	* E-4		
E1	E-2		
F1	* A-1		
ICA2	A-2		
ICA3	B-3		
ICA4	A-4		
ICB2	B-2		
ICB5	B-5		
ICB7	B-7		
ICC3	C-3		
ICC4	C-4		
ICC5	C-5		
ICC6	C-6		
ICD1	D-1		
ICD2	D-2		
ICD3	D-3		
ICD4	D-4		
ICD5	D-5		
ICD6	D-6		
ICE2	E-2		
ICE3	E-3		
ICE4	E-4		
ICE5	E-5		
ICF2	F-2		
ICF3	F-3		
ICF5	F-5		
ICG2	G-2		
ICG3	G-3		
ICG4	G-4		
ICG5	G-5		
ICH2	H-2		
ICH4	H-4		
ICH5	H-5		

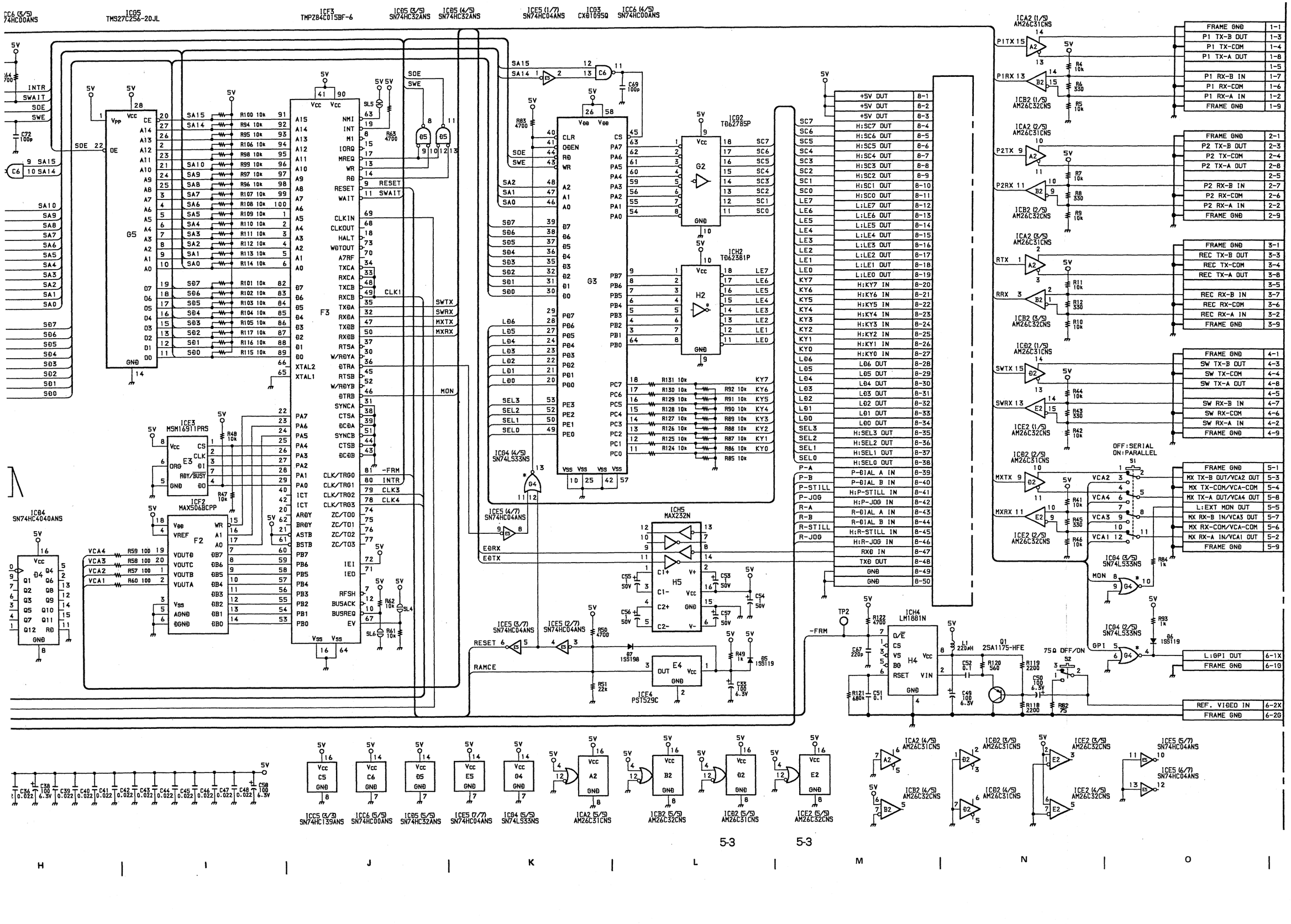
CPU-150 ; SYSTEM CONTROL



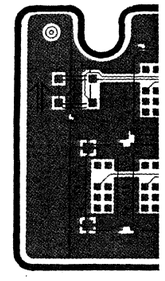
PVE-500

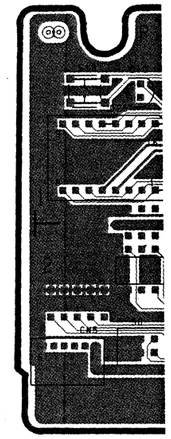
5-3 5-3

A | B | C | D | E | F | G | H

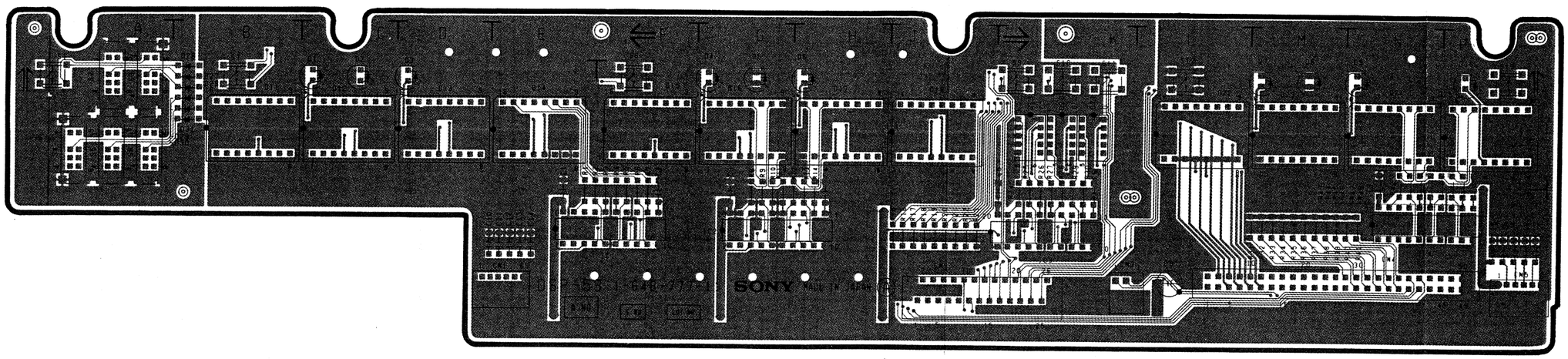

ICC6 (3/5) SN74HC00ANS
IC05 TMS27C256-20JL
ICF3 TMPZ84C015BF-6
IC05 (3/5) SN74HC32ANS
IC05 (4/5) SN74HC32ANS
ICE5 (1/7) SN74HC04ANS
IC03 CX81095Q
ICC6 (4/5) SN74HC00ANS
ICA2 (1/5) AM26C31CNS
ICB2 (1/5) AM26C32CNS
ICA2 (2/5) AM26C31CNS
ICB2 (2/5) AM26C32CNS
ICA2 (3/5) AM26C31CNS
ICB2 (3/5) AM26C32CNS
ICG2 TD62785P
ICH2 TD62361P
ICH5 MAX232N
ICH4 LM1881N
ICE3 MSM16911PRS
ICF2 MAX506BCPP
IC04 SN74HC4040ANS
ICE4 PST529C
Q1 2SA1175-HFE
OFF:SERIAL ON:PARALLEL
75Ω OFF/ON
-FRM
RAMCE
EØRX
EØTX
FRAME GNØ 1-1
P1 TX-B OUT 1-3
P1 TX-COM 1-4
P1 TX-A OUT 1-8
P1 RX-B IN 1-7
P1 RX-COM 1-6
P1 RX-A IN 1-2
FRAME GNØ 1-9
FRAME GNØ 2-1
P2 TX-B OUT 2-3
P2 TX-COM 2-4
P2 TX-A OUT 2-8
P2 RX-B IN 2-7
P2 RX-COM 2-6
P2 RX-A IN 2-2
FRAME GNØ 2-9
FRAME GNØ 3-1
REC TX-B OUT 3-3
REC TX-COM 3-4
REC TX-A OUT 3-8
REC RX-B IN 3-7
REC RX-COM 3-6
REC RX-A IN 3-2
FRAME GNØ 3-9
FRAME GNØ 4-1
SW TX-B OUT 4-3
SW TX-COM 4-4
SW TX-A OUT 4-8
SW RX-B IN 4-7
SW RX-COM 4-6
SW RX-A IN 4-2
FRAME GNØ 4-9
FRAME GNØ 5-1
MX TX-B OUT/VCA2 OUT 5-3
MX TX-COM/VCA-COM 5-4
MX TX-A OUT/VCA4 OUT 5-8
L:EXT MON OUT 5-5
MX RX-B IN/VCA3 OUT 5-7
MX RX-COM/VCA-COM 5-6
MX RX-A IN/VCA1 OUT 5-2
FRAME GNØ 5-9
L:GPI OUT 6-1X
FRAME GNØ 6-1G
REF. VIDEO IN 6-2X
FRAME GNØ 6-2G
+5V OUT 8-1
+5V OUT 8-2
+5V OUT 8-3
H:SC7 OUT 8-4
H:SC6 OUT 8-5
H:SC5 OUT 8-6
H:SC4 OUT 8-7
H:SC3 OUT 8-8
H:SC2 OUT 8-9
H:SC1 OUT 8-10
H:SC0 OUT 8-11
L:LE7 OUT 8-12
L:LE6 OUT 8-13
L:LE5 OUT 8-14
L:LE4 OUT 8-15
L:LE3 OUT 8-16
L:LE2 OUT 8-17
L:LE1 OUT 8-18
L:LE0 OUT 8-19
H:KY7 IN 8-20
H:KY6 IN 8-21
H:KY5 IN 8-22
H:KY4 IN 8-23
H:KY3 IN 8-24
H:KY2 IN 8-25
H:KY1 IN 8-26
H:KY0 IN 8-27
LØ6 OUT 8-28
LØ5 OUT 8-29
LØ4 OUT 8-30
LØ3 OUT 8-31
LØ2 OUT 8-32
LØ1 OUT 8-33
LØ0 OUT 8-34
H:SEL3 OUT 8-35
H:SEL2 OUT 8-36
H:SEL1 OUT 8-37
H:SEL0 OUT 8-38
P-DIAL A IN 8-39
P-DIAL B IN 8-40
H:P-STILL IN 8-41
H:P-JOG IN 8-42
R-DIAL A IN 8-43
R-DIAL B IN 8-44
H:R-STILL IN 8-45
H:R-JOG IN 8-46
RXD IN 8-47
TXD OUT 8-48
GNØ 8-49
GNØ 8-50
CPU-150
1-648-776-11
PVE-500
5-3
5-3

DSP-53 ; DISP

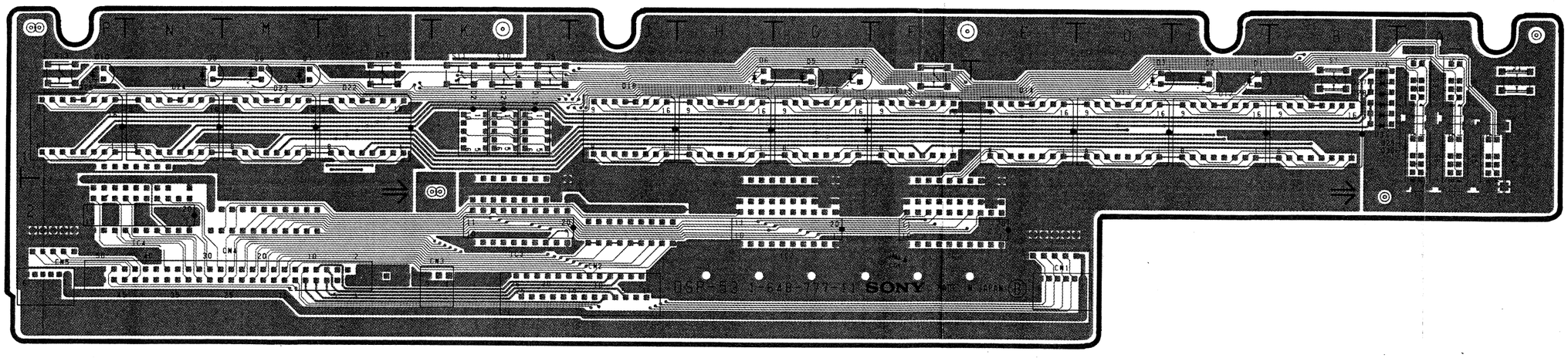




DSP-53 ; DISPLAY & KEY SWITCH



DSP-53 – A SIDE –
1-648-777-11
PVE-500

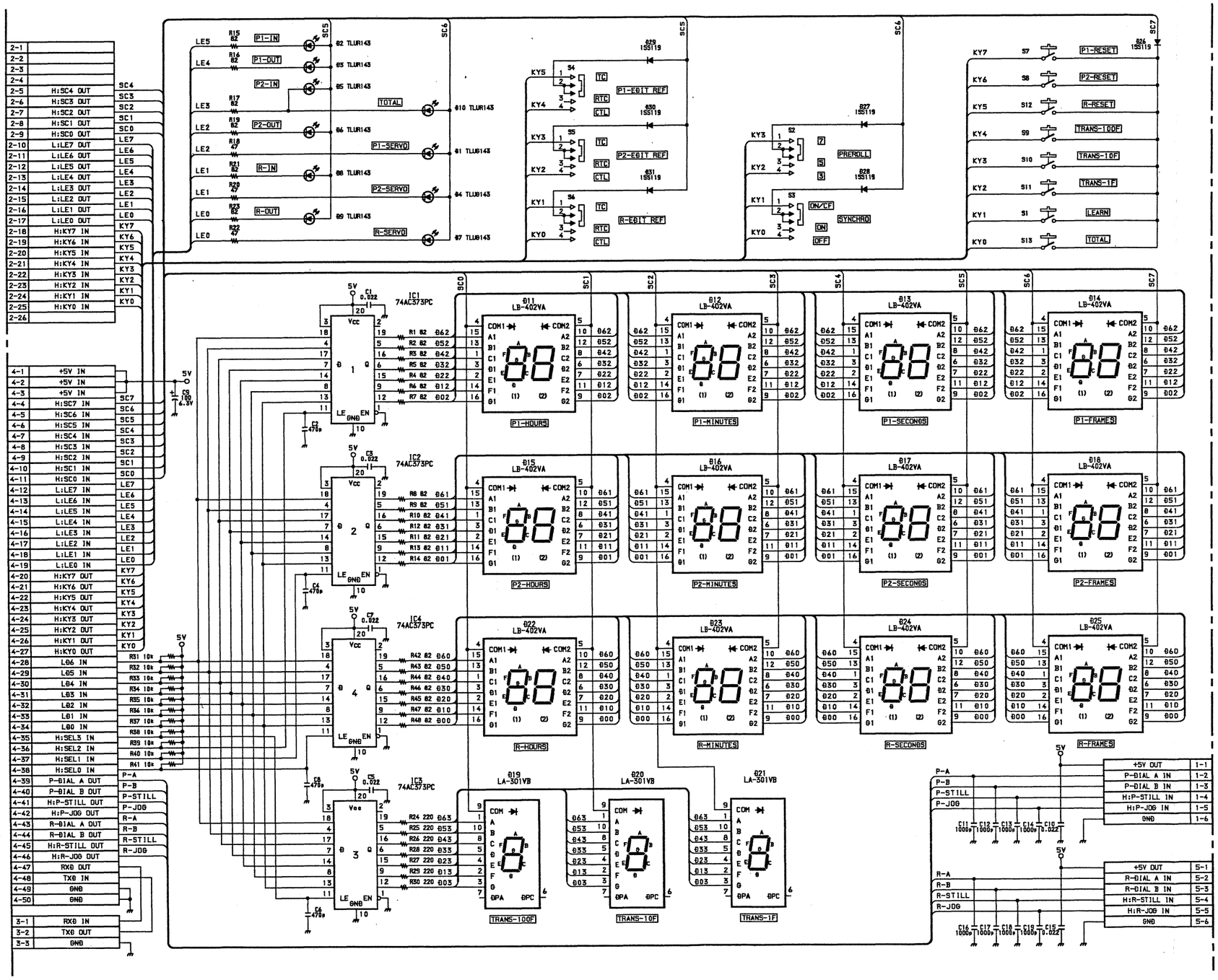


DSP-53 – B SIDE –
1-648-777-11
PVE-500

DSP-53 (1-707-360-11)

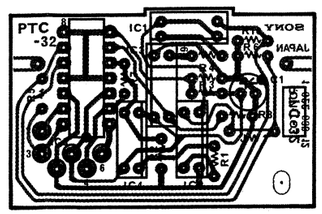
CN1	E-2
CN2	J-2
CN3	K-2
CN4	N-2
CN5	P-2
D1	C-1
D2	C-1
D3	D-3
D4	G-1
D5	G-1
D6	H-1
D7	M-1
D8	M-1
D9	N-1
D10	P-1
D11	B-1
D12	C-1
D13	D-1
D14	E-1
D15	F-1
D16	G-1
D17	H-1
D18	J-1
D19	K-1
D20	K-1
D21	K-1
D22	L-1
D23	M-1
D24	N-1
D25	P-1
D26	B-1
D27	B-1
D28	B-1
D29	B-1
D30	B-1
D31	B-1
IC1	F-2
IC2	G-2
IC3	K-2
IC4	N-2
S1	A-1
S2	A-1
S3	A-1
S4	A-1
S5	A-1
S6	A-1
S7	B-1
S8	F-1
S9	K-1
S10	K-1
S11	K-1
S12	L-1
S13	P-1

DSP-53 ; DISPLAY & KEY SWITCH

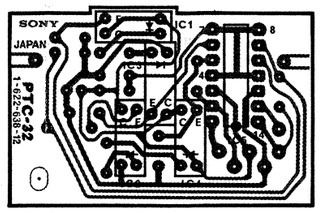


DSP-53
1-648-777-11
PVE-500

PTC-32 ; SEARCH DIAL

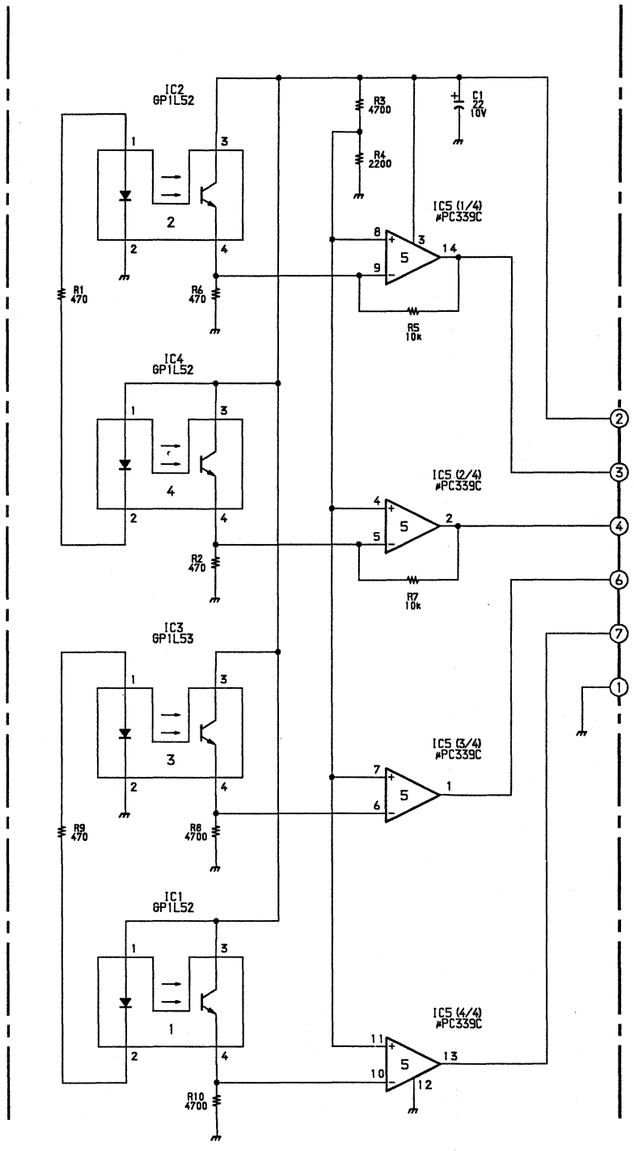


PTC-32 – A SIDE –
1-622-638-12
PVE-500



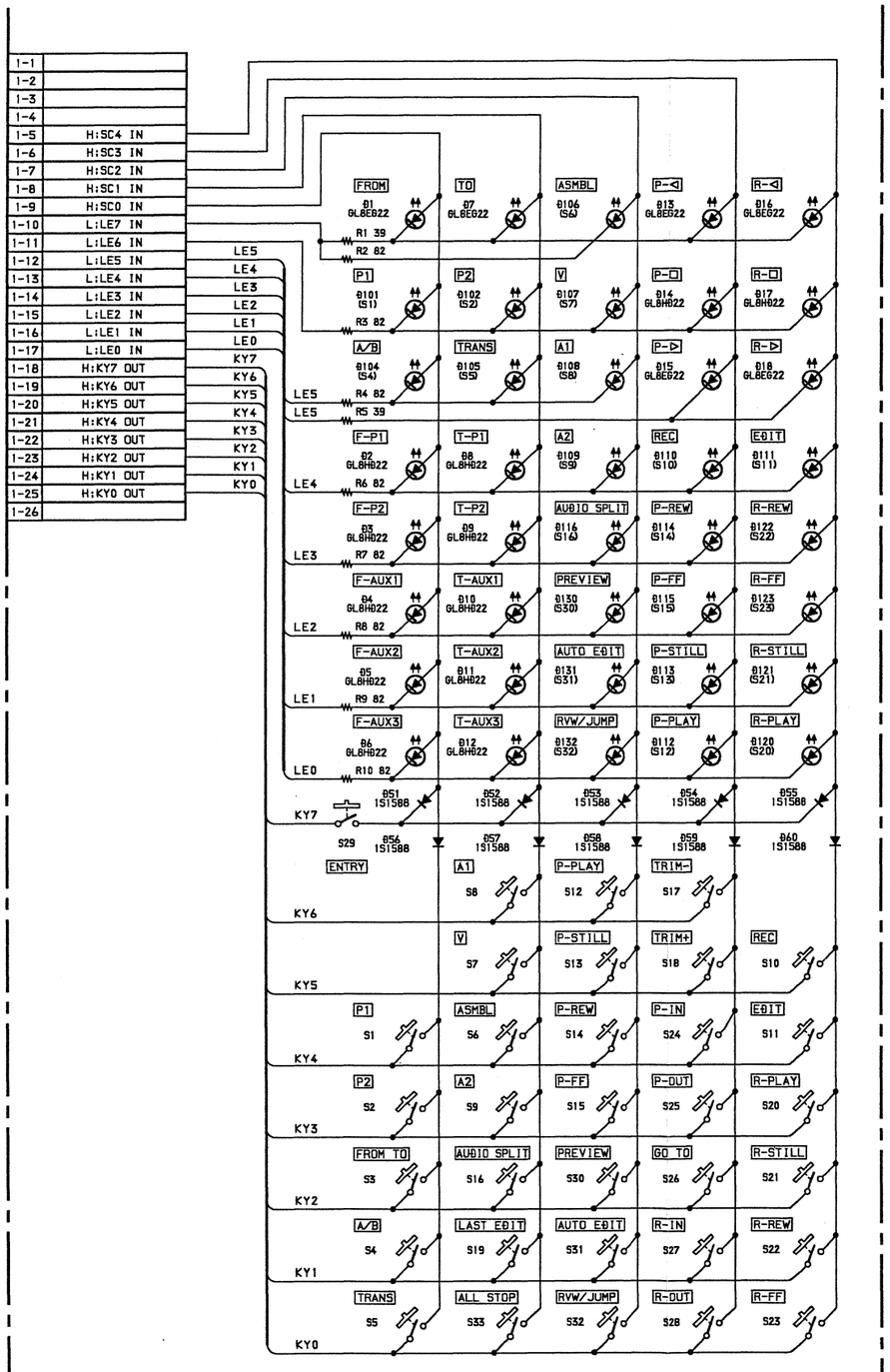
PTC-32 – B SIDE –
1-622-638-12
PVE-500

PTC-32 ; SEARCH DIAL



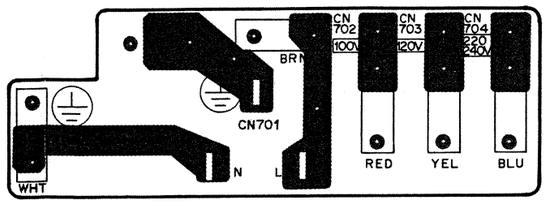
PTC-32
1-622-638-12
PVE-500

KEY BOARD ASSY

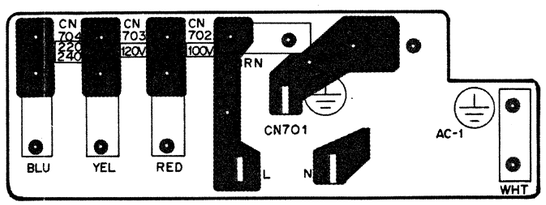


KEYBOARD ASSY
PVE-500

AC-1 ; POWER UNIT

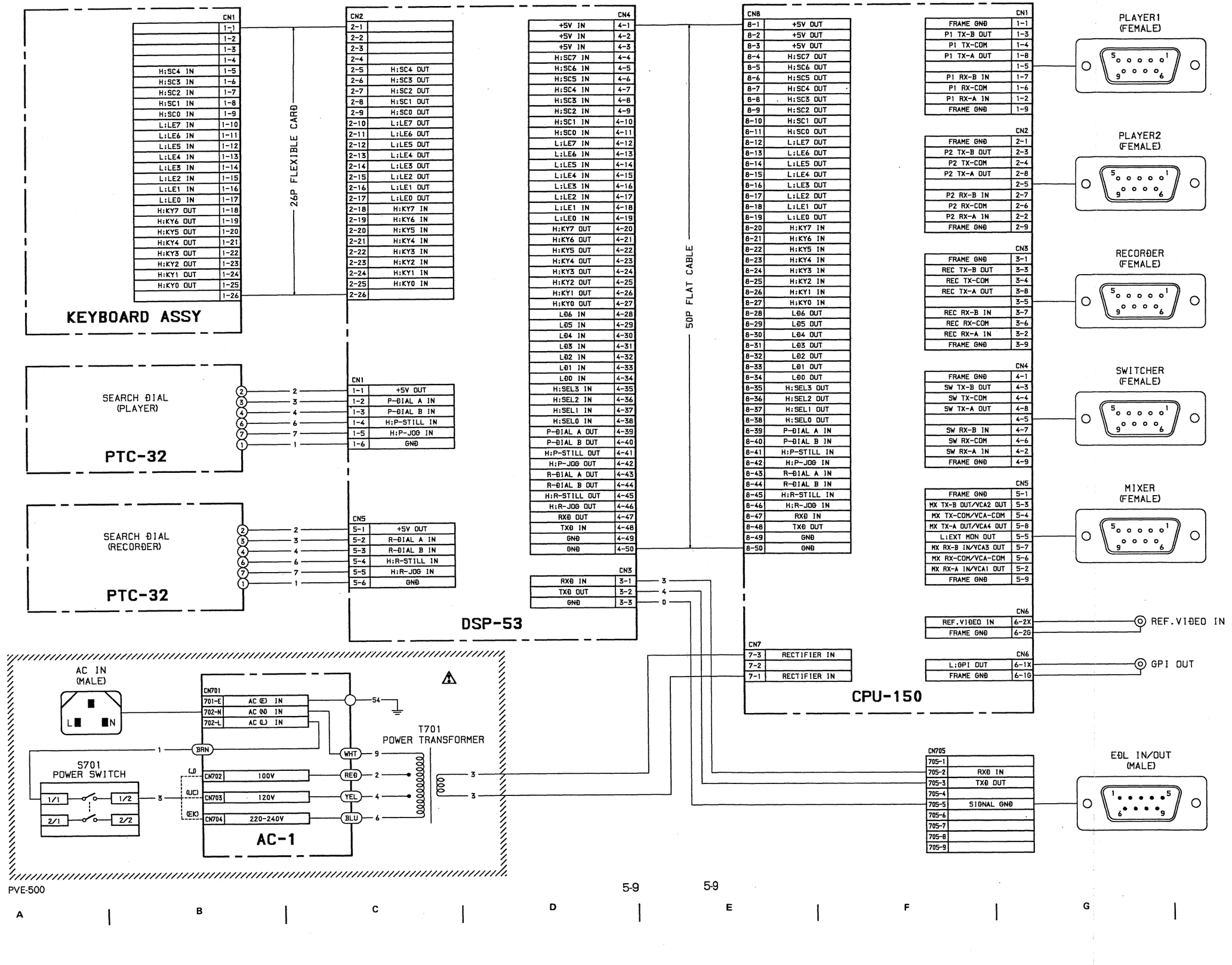


AC-1 – A SIDE –
1-625-671-11
PVE-500



AC-1 – B SIDE –
1-625-671-11
PVE-500

FRAME WIRING



FRAME WIRING
PVE-500

SECTION 6
SEMICONDUCTOR PIN ASSIGNMENTS

ここに記載されているIC, トランジスタ, ダイオードは, それぞれの機能を等価的に表したものです。したがって互換性を表すものではありません。(互換性のない型名が併記されている事もあります。) 部品の交換をする時は, SPARE PARTSの章を参照して下さい。

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

DIODE	PAGE
1S1588	6-2
1SS119	6-2
1SS119TD	6-2
ERA81-004	6-2
ERA83	6-2
GL8EG22	6-2
GL8HD22	6-2
LA-301VB	6-2
LB-402VA	6-2
RD ? ?ESB ?	6-2
S2VB10	6-2
S2VB60	6-2
TLUG143	6-2
TLUR143	6-2

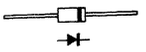
TRANSISTOR	PAGE
2SA1175	6-2
GP-1L52	6-2
GP-1L53	6-2

IC	PAGE
74AC373PC	6-2
AM26C31CNS	6-2
AM26C32CNS	6-2
CXD1095Q	6-3
CXK5864BM-12LL	6-3
LM1881N	6-4
MAX232N	6-4
MAX506BCPP	6-4
MB8421-90LPFQ	6-5
MB88201H-539N	6-5
MC74HC390F	6-5
MSM16911PRS	6-6
PST529C	6-6
SI-3052V	6-6
SI-3522V	6-6
SN74HC00ANS	6-6
SN74HC04ANS	6-6
SN74HC139ANS	6-6
SN74HC32ANS	6-7
SN74HC4040ANS	6-7
SN74LS33NS	6-7
TD62381P	6-7
TD62785P	6-7
TMPZ84C015BF-6	6-8
TMPZ84C30AM-6	6-9
TMPZ84C40AP-8	6-9
TMS27C256-20JL	6-10
TMS27C512-20JL	6-10
UPC339C	6-10

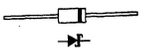
等価回路はICメーカーのData Bookに従いました。

The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

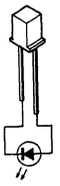
DIODE



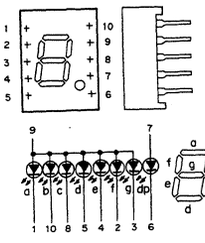
1S1588
1SS119
1SS119TD
ERA83



ERA81-004

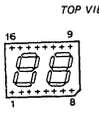


GL8EG22 ; GREEN
GL8HD22 ; RED

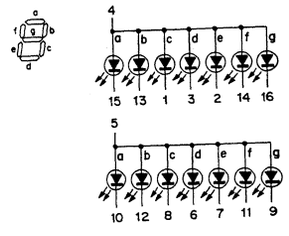


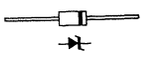
LA-301VB ; RED

TOP VIEW



LB-402VA ; RED

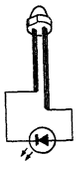




RD ? ?ESB ?

BOTTOM VIEW

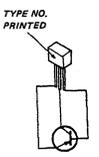
S2VB10
S2VB60



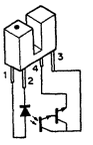
TLUG143 ; GREEN
TLUR143 ; RED

TRANSISTOR

TYPE NO. PRINTED



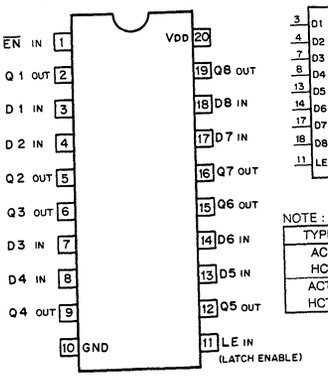
2SA1175

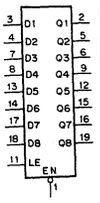


GP-1L52
GP-1L53

IC

74AC373PC (NS).
C-MOS 3-STATE OUTPUTS OCTAL LATCHES
– TOP VIEW –



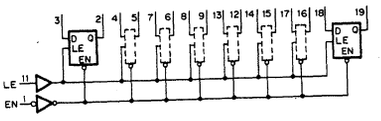


INPUTS			OUT
EN	D	LE	Q
0	1	1	1
0	0	1	0
0	X	0	Q0
1	X	X	HI-Z

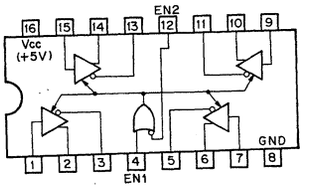
HI-Z ; HIGH IMPEDANCE
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

NOTE :

TYPE	VDD
AC HC	+2 to +6V
ACT HCT	+5V



AM26C31CNS (TI) FLAT PACKAGE
HIGH SPEED DIFFERENTIAL LINE DRIVER
– TOP VIEW –

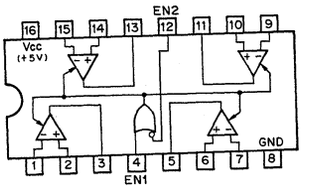


FUNCTION TABLE

EN2	EN1	OUTPUT
0	0	ENABLE
0	1	ENABLE
1	0	HI-Z
1	1	ENABLE

0 ; LOW LEVEL
1 ; HIGH LEVEL
HI-Z ; HIGH IMPEDANCE

AM26C32CNS (TI) FLAT PACKAGE
HIGH SPEED DIFFERENTIAL LINE RECEIVER
– TOP VIEW –



FUNCTION TABLE

EN2	EN1	OUTPUT
0	0	ENABLE
0	1	ENABLE
1	0	HI-Z
1	1	ENABLE

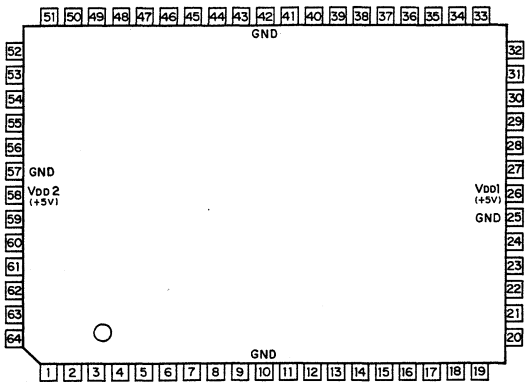
0 ; LOW LEVEL
1 ; HIGH LEVEL
HI-Z ; HIGH IMPEDANCE

	SENSE	INPUT VOLT
C32/LS32	± 200mV	± 7V
LS33	± 500mV	± 15V

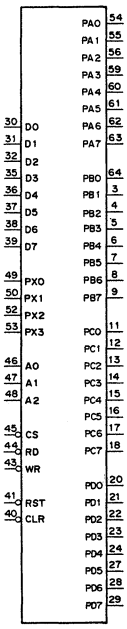
CXD1095Q (SONY) FLAT PACKAGE

C-MOS I/O PORT EXPANDER

– TOP VIEW –



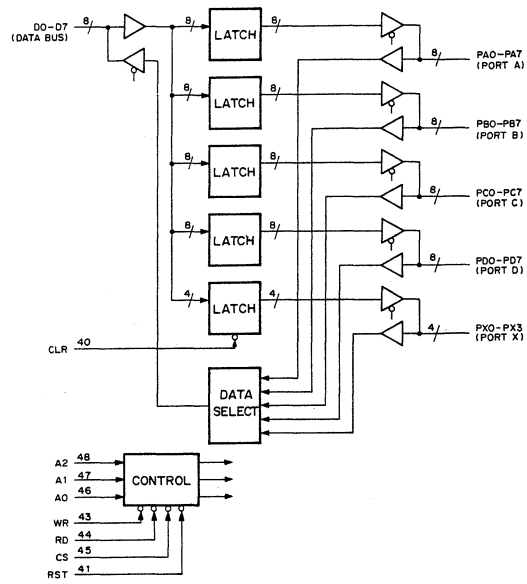
PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1			NC	17	O	O	PC6	33			NC	49	O	O	PX0
2			NC	18	O	O	PC7	34			NC	50	O	O	PX1
3	O	O	PB1	19			NC	35	O	O	D3	51			NC
4	O	O	PB2	20	O	O	PD0	36	O	O	D4	52	O	O	PX2
5	O	O	PB3	21	O	O	PD1	37	O	O	D5	53	O	O	PX3
6	O	O	PB4	22	O	O	PD2	38	O	O	D6	54	O	O	PA0
7	O	O	PB5	23	O	O	PD3	39	O	O	D7	55	O	O	PA1
8	O	O	PB6	24	O	O	PD4	40	O		CLR	56	O	O	PA2
9	O	O	PB7	25			GND	41	O		RST	57			GND
10			GND	26	O		VDD (+5V)	42			GND	58	O		VDD (+5V)
11	O	O	PC0	27	O	O	PD5	43	O		WR	59	O	O	PA3
12	O	O	PC1	28	O	O	PD6	44	O		RD	60	O	O	PA4
13	O	O	PC2	29	O	O	PD7	45	O		CS	61	O	O	PA5
14	O	O	PC3	30	O	O	D0	46	O		A0	62	O	O	PA6
15	O	O	PC4	31	O	O	D1	47	O		A1	63	O	O	PA7
16	O	O	PC5	32	O	O	D2	48	O		A2	64	O	O	PB0



CS	RD	WR	A2	A1	A0	MODE
0	0	1	0	0	0	PORT A → DATA BUS
0	0	1	0	0	1	PORT B → DATA BUS
0	0	1	0	1	0	PORT C → DATA BUS
0	0	1	0	1	1	PORT D → DATA BUS
0	0	1	1	0	0	PORT X → DATA BUS
0	0	1	1	0	1	——
0	0	1	1	1	0	——
0	0	1	1	1	1	——
0	1	0	0	0	0	DATA BUS → PORT A
0	1	0	0	0	1	DATA BUS → PORT B
0	1	0	0	1	0	DATA BUS → PORT C
0	1	0	0	1	1	DATA BUS → PORT D
0	1	0	1	0	0	DATA BUS → PORT X
0	1	0	1	0	1	——
0	1	0	1	1	0	DATA BUS → CTL REG.1
0	1	0	1	1	1	DATA BUS → CTL REG.2
1	X	X	X	X	X	DATA BUS ; HI-Z

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z, HIGH IMPEDANCE

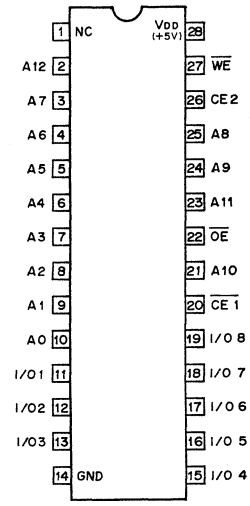
DO–D7 ; DATA BUS INPUTS/OUTPUTS
CS ; CHIP SELECT INPUT
RD ; READ STROBE INPUT
WR ; WRITE STROBE INPUT
A0–A2 ; ADDRESS INPUT
RST ; RESET INPUT
CLR ; CLEAR INPUT
PA0–PA7 ; PORT A INPUTS/OUTPUTS
PB0–PB7 ; PORT B INPUTS/OUTPUTS
PC0–PC7 ; PORT C INPUTS/OUTPUTS
PD0–PD7 ; PORT D INPUTS/OUTPUTS
PX0–PX3 ; PORT X INPUTS/OUTPUTS

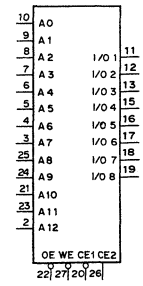


CXK5864BM-12LL (SONY) FLAT PACKAGE

C-MOS 64K (8192x8)-BIT STATIC RAM

– TOP VIEW –

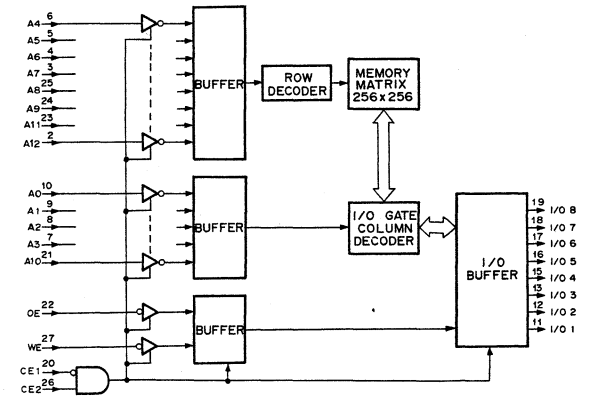




A0 – A12 ; ADDRESS INPUT
CE1, CE2 ; CHIP ENABLE INPUT
I/O1 – I/O8 ; DATA INPUT/OUTPUT
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

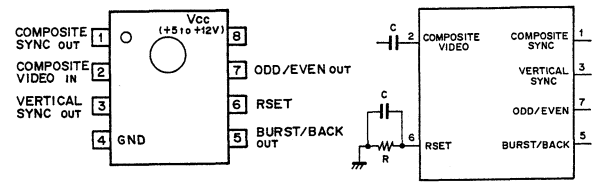
$\overline{CE1}$	CE2	$\overline{OE}$	$\overline{WE}$	MODE	I/O TERMINAL
1	X	X	X	NOT SELECT	HIGH IMPEDANCE
X	0	X	X	NOT SELECT	HIGH IMPEDANCE
0	1	1	1	OUTPUT DISABLE	HIGH IMPEDANCE
0	1	0	1	READ	OUTPUT DATA
0	1	X	0	WRITE	INPUT DATA

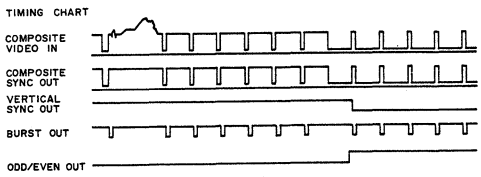
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



LM1881N (NS)

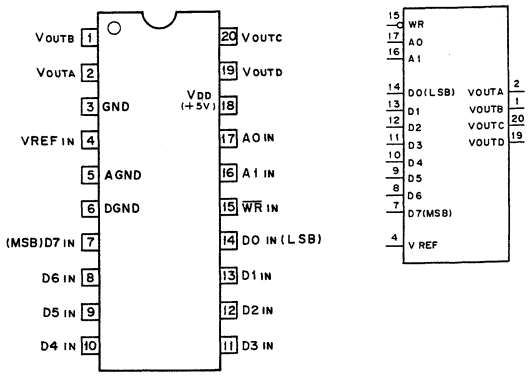
VIDEO SYNC SEPARATOR
– TOP VIEW –





MAX506BCPP (MAXIM)

C-MOS QUAD 8-BIT DACs WITH RAIL-TO-RAIL VOLTAGE OUTPUTS
– TOP VIEW –

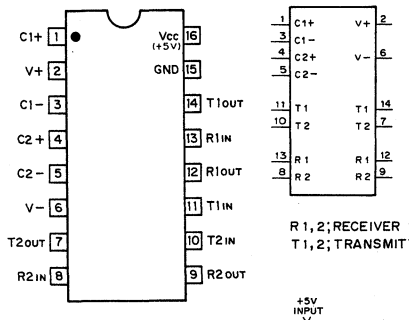


INPUT
A0／A1 ; DAC ADDRESS SELECT BIT 0 (LSB) ／1 (MSB)
D0—D7 ; DATA BIT 0 (LSB) —7 (MSB)
VREF ; REFERENCE VOLTAGE INPUT FOR DAC A—D
$\overline{WR}$; WRITE INPUT (ACTIVE LOW)

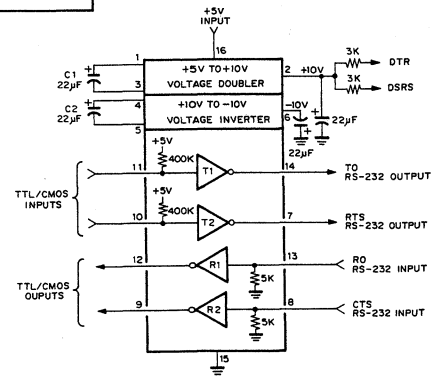
OUTPUT
V_{OUTA}—V_{OUTD}; DAC A—D OUTPUT VOLTAGE

MAX232N (TI)

RS-232 TRANSMITTER／RECEIVER
– TOP VIEW –

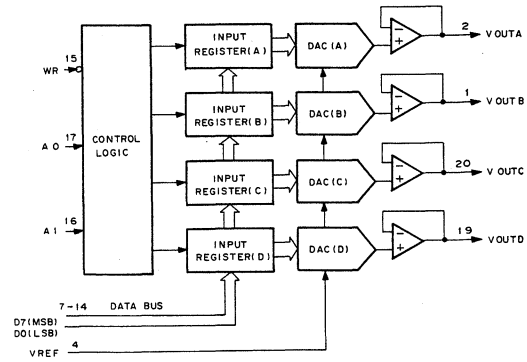


R1,2;RECEIVER 1,2
T1,2;TRANSMITTER 1,2



$\overline{WR}$	A1	A0	OPERATION
1	X	X	NO OPERATION
0	0	0	DAC A INPUT REGISTER TRANSPARENT
R	0	0	DAC A INPUT REGISTER LATCHED
0	0	1	DAC B INPUT REGISTER TRANSPARENT
0	1	0	DAC C INPUT REGISTER TRANSPARENT
0	1	1	DAC D INPUT REGISTER TRANSPARENT

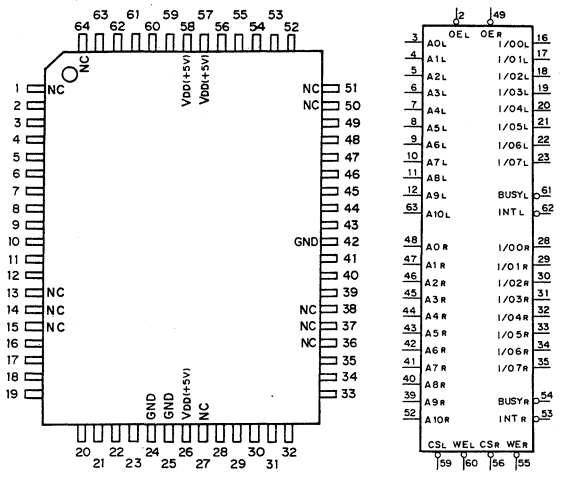
0 : LOW LEVEL
1 : HIGH LEVEL
×: DON'T CARE
R : RISING EDGE



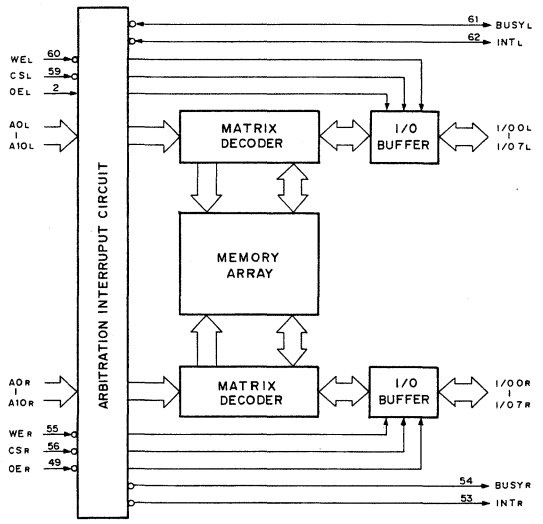
MB8421-90LPFQ (FUJITSU) (ACCESS TIME = 90nS) FLAT PACKAGE

C-MOS 16384 (2Kx8) BIT DUAL PORT STATIC RAM

– TOP VIEW –


NC
VDD(+5V)
GND
A0L A1L A2L A3L A4L A5L A6L A7L A8L A9L A10L
A0R A1R A2R A3R A4R A5R A6R A7R A8R A9R A10R
I/O0L I/O1L I/O2L I/O3L I/O4L I/O5L I/O6L I/O7L
I/O0R I/O1R I/O2R I/O3R I/O4R I/O5R I/O6R I/O7R
OEL OER
BUSYL INTL
BUSYR INTR
CSL WEL CSR WER

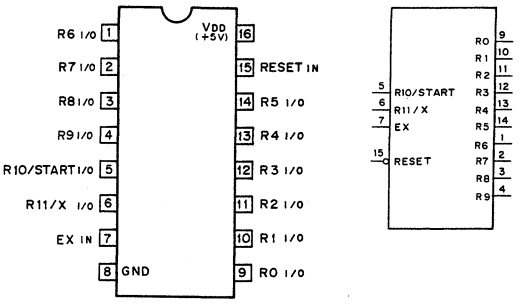
A0L – A10L, A0R – A10R : ADDRESS INPUTS
I/O0L – I/O7L, I/O0R – I/O7R : DATA INPUTS/OUTPUTS
CSL, CSR : CHIP SELECT INPUT
WEL, WER : WRITE ENABLE INPUT
OEL, OER : OUTPUT ENABLE INPUT
BUSYL, BUSYR : BUSY OUTPUT
INTL, INTR : INTERRUPT OUTPUT



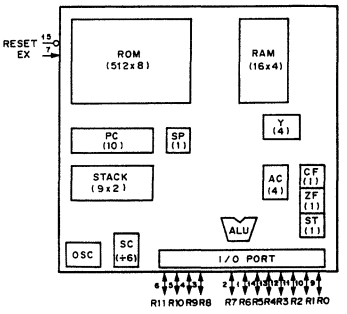
MB88201H-539N (FUJITSU)

C-MOS 4-BIT MICROCOMPUTER

– TOP VIEW –



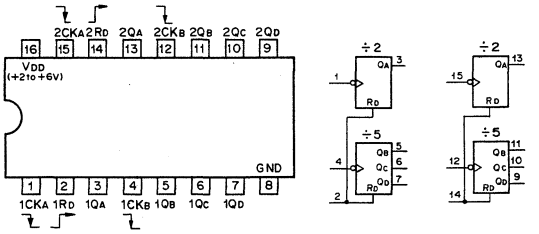
EX ; EXTERNAL X'TAL IN
R0–R11 ; I/O PORT(R) IN/OUT
RESET ; RESET IN
START ; STANDBY RELEASE IN
R11/X ; EXT CLOCK IN/INT CLOCK OUT



MC74HC390F (MOTOROLA) FLAT PACKAGE

C-MOS DIVIDE-BY-2 AND DIVIDE-BY-5 COUNTER

– TOP VIEW –



COUNT SEQUENCE

÷2 SECTION

COUNT	QA
0	0
1	1

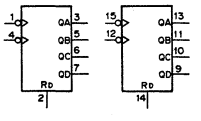
÷5 SECTION

COUNT	QD	QC	QB
0	0	0	0
1	0	0	1
2	0	1	0
3	0	1	1
4	1	0	0

RESET/COUNT FUNCTION

RD	QD	QC	QB	QA
1	0	0	0	0
0	COUNT			

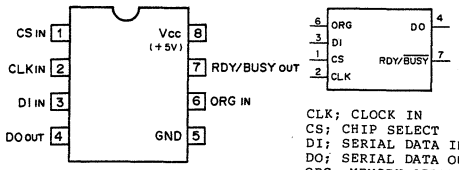
0; LOW LEVEL
1; HIGH LEVEL



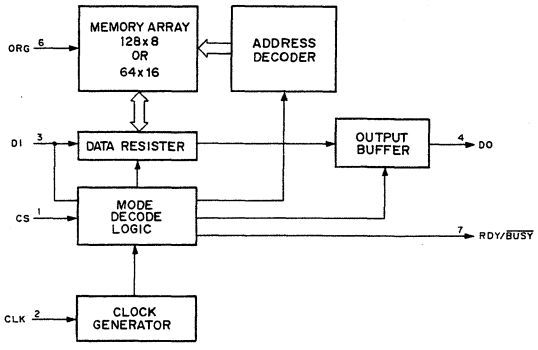
MSM16911PRS (OKI)

1K BIT SERIAL EEPROM

– TOP VIEW –



CLK; CLOCK IN
CS; CHIP SELECT
DI; SERIAL DATA IN
DO; SERIAL DATA OUT
ORG; MEMORY ARRAY SELECT IN
RDY/BUSY; STATUS OUT

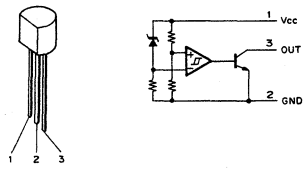


PST529C (MITSUMI) Vs = 4.5V

VOLTAGE DETECTOR,

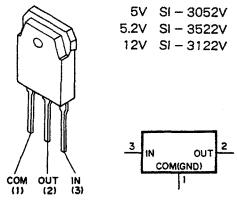
SYSTEM RESET

(MITSUMI)



SI-3052V (SANKEN)
SI-3522V (SANKEN)

POSITIVE VOLTAGE REGULATOR (2A)

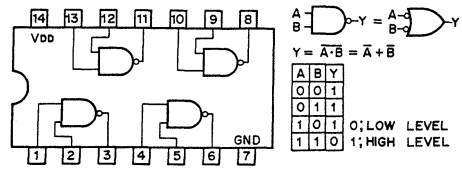


5V SI – 3052V
5.2V SI – 3522V
12V SI – 3122V

SN74HC00ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT NAND GATES

– TOP VIEW –



A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

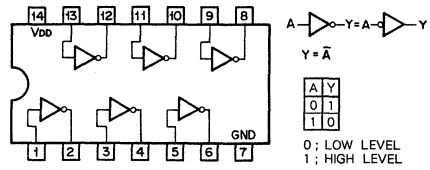
NOTE :

TYPE	VDD
TC74AC00 TYPE TC74VHC00	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC04ANS (TI) FLAT PACKAGE

C-MOS HEX INVERTERS

– TOP VIEW –



A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

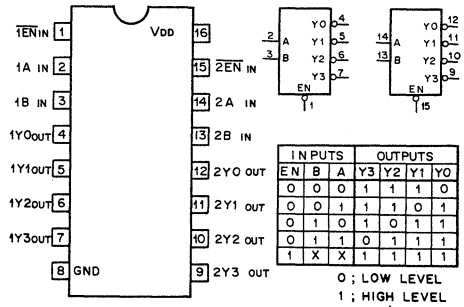
NOTE :

TYPE	VDD
74HCT04 TYPE	+5V
TC74AC04 TYPE TC74VHC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC139ANS (TI) FLAT PACKAGE

C-MOS DUAL 2-TO-4 DECODER/DEMULTIPLEXER

– TOP VIEW –



INPUTS			OUTPUTS			
EN	B	A	Y3	Y2	Y1	Y0
0	0	0	1	1	1	0
0	0	1	1	1	0	1
0	1	0	1	0	1	1
0	1	1	0	1	1	1
1	X	X	1	1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

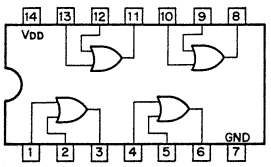
NOTE :

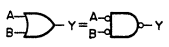
TYPE	VDD
74AC/74HC	+2 to +6V
74ACT	+5V
TC74AC139	+2 to +5.5V

SN74HC32ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT OR GATES

– TOP VIEW –





A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0:LOW LEVEL
1:HIGH LEVEL

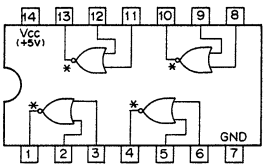
NOTE :

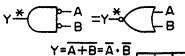
TYPE	VDD
TC74AC32 TYPE TC74VHC32	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74LS33NS (TI) FLAT PACKAGE

TTL 2-INPUT POSITIVE-NOR GATE WITH OPEN-COLLECTOR

– TOP VIEW –





$Y=\overline{A+B}=\overline{A}\cdot\overline{B}$

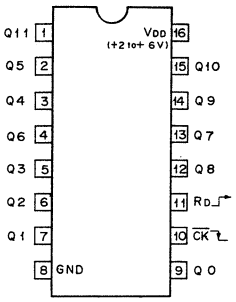
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

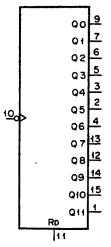
0:LOW LEVEL
1:HIGH LEVEL

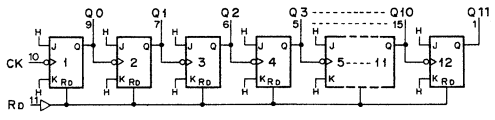
SN74HC4040ANS (TI) FLAT PACKAGE

C-MOS 12-STAGE RIPPLE CARRY BINARY COUNTER/DRIVER

– TOP VIEW –







COUNT	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	1	0
3	0	0	0	0	0	0	0	0	0	0	1	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
4095	1	1	1	1	1	1	1	1	1	1	1	1

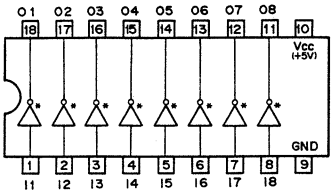
RD	Q11 ------- Q0
1	ALL LOW
0	COUNT

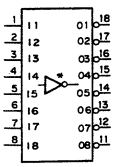
0; LOW LEVEL
1; HIGH LEVEL

TD62381P (TOSHIBA)

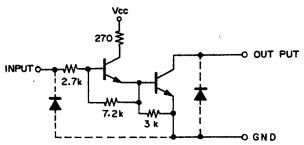
OCTAL LOW SATURATION DRIVER

– TOP VIEW –





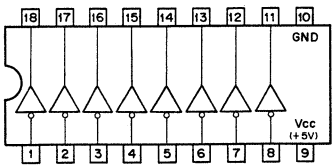
*; OPEN COLLECTOR

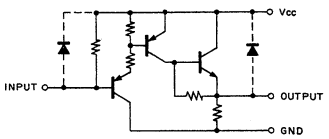


TD62785P (TOSHIBA)

OCTAL SOURCE DRIVER

– TOP VIEW –

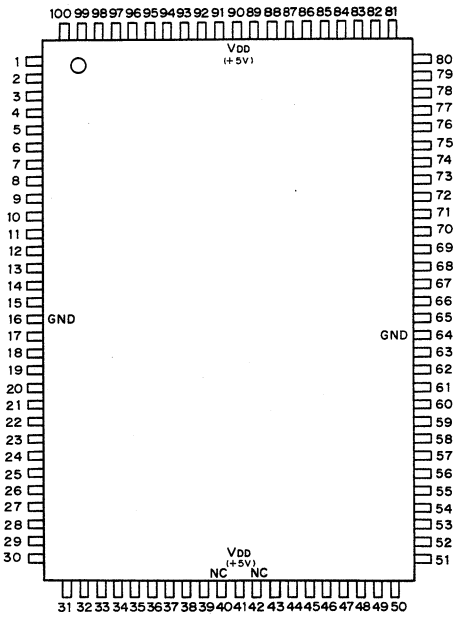




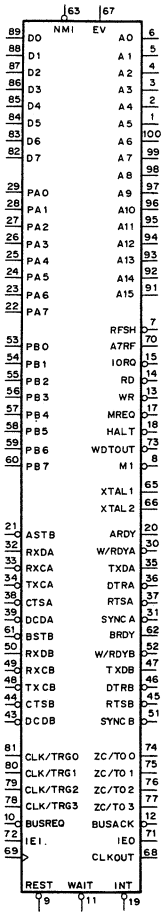
TMPZ84C015BF-6 (TOSHIBA) FLAT PACKAGE

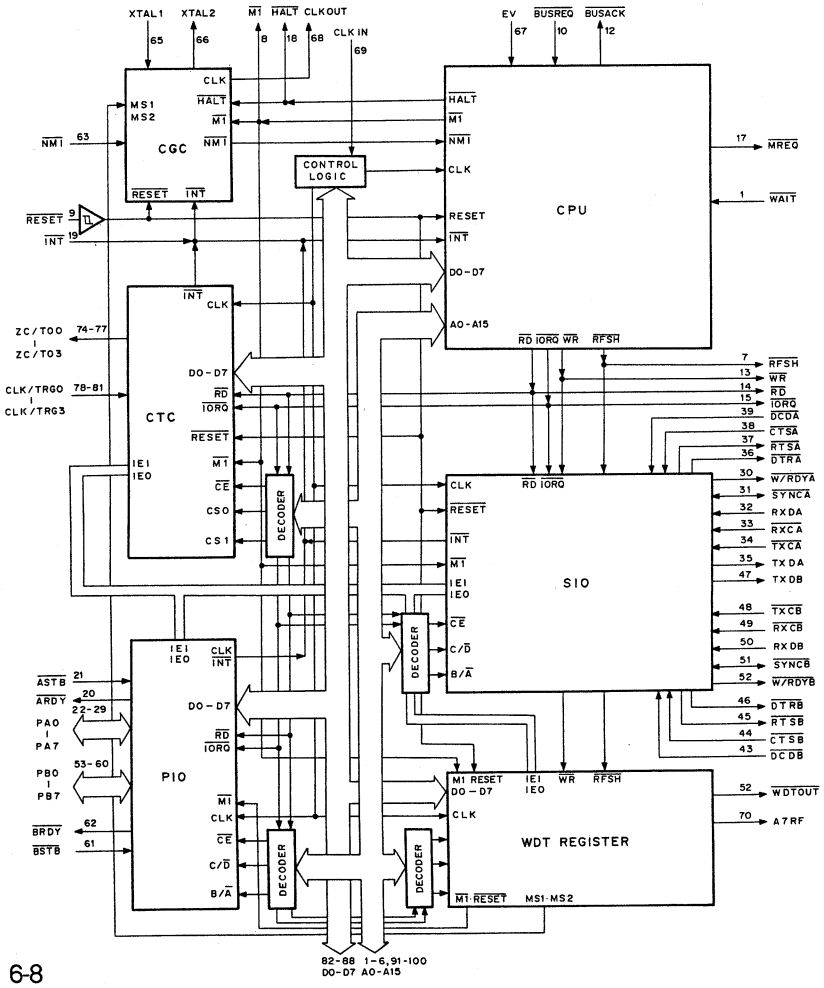
C-MOS 8-BIT MICROPROCCESSOR

– TOP VIEW –



NO.	IN	OUT	SYMBOL	NO.	IN	OUT	SYMBOL
1		O	A5	51	O	O	SYNCB
2		O	A4	52		O	W/RDYB
3		O	A3	53	O	O	PB0
4		O	A2	54	O	O	PB1
5		O	A1	55	O	O	PB2
6		O	A0	56	O	O	PB3
7		O	RFSH	57	O	O	PB4
8		O	M1	58	O	O	PB5
9	O		REST	59	O	O	PB6
10	O		BUSREQ	60	O	O	PB7
11	O		WAIT	61	O		BSTB
12		O	BUSACK	62		O	BRDY
13		O	WR	63	O		NMI
14		O	RD	64			GND
15		O	IORQ	65	O		XTAL1
16			GND	66		O	XTAL2
17		O	MREQ	67	O		EV
18		O	HALT	68		O	CLKOUT
19	O		INT	69	O		CLKIN
20		O	ARDY	70		O	A7RF
21	O		ASTB	71		O	IEO
22	O	O	PA7	72	O		IEI
23	O	O	PA6	73		O	WDTOUT
24	O	O	PA5	74		O	ZC/TO0
25	O	O	PA4	75		O	ZC/TO1
26	O	O	PA3	76		O	ZC/TO2
27	O	O	PA2	77		O	ZC/TO3
28	O	O	PA1	78	O		CLK/TRG3
29	O	O	PA0	79	O		CLK/TRG2
30		O	W/RDYA	80	O		CLK/TRG1
31	O	O	SYNCA	81	O		CLK/TRG0
32	O		RXDA	82	O	O	D7
33	O		RXCA	83	O	O	D6
34	O		TXCA	84	O	O	D5
35		O	TXDA	85	O	O	D4
36		O	DTRA	86	O	O	D3
37		O	RTSA	87	O	O	D2
38	O		CTSA	88	O	O	D1
39	O		DCDA	89	O	O	D0
40			NC	90			VDD
41			VDD	91		O	A15
42			NC	92		O	A14
43	O		DCDB	93		O	A13
44	O		CTSB	94		O	A12
45		O	RTSB	95		O	A11
46		O	DTRB	96		O	A10
47		O	TXDB	97		O	A9
48	O		TXCB	98		O	A8
49	O		RXCB	99		O	A7
50	O		RXDB	100		O	A6


63 67
NMI EV
89 D0 88 D1 87 D2 86 D3 85 D4 84 D5 83 D6 82 D7
29 PA0 28 PA1 27 PA2 26 PA3 25 PA4 24 PA5 23 PA6 22 PA7
53 PB0 54 PB1 55 PB2 56 PB3 57 PB4 58 PB5 59 PB6 60 PB7
21 ASTB 32 RXDA 33 RXCA 34 TXCA 38 CTSA 39 DCDA 61 BSTB 50 RXDB 49 RXCB 48 TXCB 44 CTSB 43 DCDB
81 CLK/TRG0 80 CLK/TRG1 79 CLK/TRG2 78 CLK/TRG3
10 BUSREQ 72 IEI 69
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15
RFSH A7RF IORQ RD WR MREQ HALT WDTOUT M1
XTAL1 XTAL2
ARDY W/RDYA TXDA DTRA RTSA SYNC A BRDY W/RDYB TXDB DTRB RTSB SYNC B
ZC/TO0 ZC/TO1 ZC/TO2 ZC/TO3
IEO CLKOUT
REST WAIT INT
9 11 19

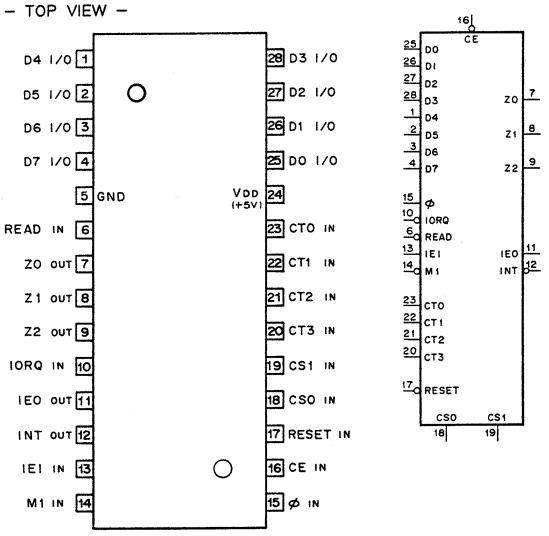


A0 – A15	; 3-STATE ADDRESS BUS OUTPUTS
BUSACK	; BUS ACKNOWLEDGE OUTPUT
BUSREQ	; BUS REQUEST INPUT
CLK/TRIG0 – 3	; EXTERNAL CLOCK/TIMER TRIGGER 0 – 3 INPUTS
D0 – D7	; 3-STATE DATA BUS INPUTS/OUTPUTS
EV	; EVALUATER INPUT
HALT	; HALT OUTPUT
IEI/IEO	; CTC INTERRUPT ENABLE INPUT/OUTPUT
INT	; MASKABLE INTERRUPT REQUEST/INPUT
IORQ	; 3-STATE I/O REQUEST OUTPUT
M1	; 3-STATE MACHINE CYCLE 1 OUTPUT
MREQ	; 3-STATE MEMORY REQUEST OUTPUT
NMI	; NON-MASKABLE INTERRUPT REQUEST INPUT
PA0 – PA7, PB0 – PB7	; 3-STATE I/O PORT
RD	; 3-STATE READ OUTPUT
REST	; RESET INPUT
RFSH	; REFRESH OUTPUT
WAIT	; WAIT REQUEST INPUT
WR	; 3-STATE WRITE OUTPUT
ZC/TO0 – 3	; ZERO COUNT/TIME OUT 0 – 3 OUTPUTS
ASTB	; PORT A STROBE PULSE INPUT
ARDY	; REGISTER A READY OUTPUT
BSTB	; PORT B STROBE PULSE INPUT
BRDY	; REGISTER B READY OUTPUT
SYNCA, SYNCB	; SYNC INPUT/OUTPUT
W/RADYA, W/RADYB	; WAIT/READY OUTPUT
RXDA, RXDB	; SERIAL DATA INPUT
RXCA, RXCB	; RECEIVE CLOCK INPUT
TXCA, TXCB	; TRANSMISSION CLOCK INPUT
TXDA, TXDB	; SERIAL DATA OUTPUT
DTRA, DTRB	; DATA TERMINAL READY OUTPUT
RTSA, RTSB	; TRANSMISSION REQUEST OUTPUT
CTSA, CTSB	; TRANSMISSION ENABLE INPUT
DCDA, DCDB	; DATA CARRIER DETECT OUTPUT
WDTOUT	; WATCH DOG TIMER OUTPUT

TMPZ84C30AM-6 (TOSHIBA) FLAT PACKAGE

C-MOS COUNTER TIMER CIRCUIT

– TOP VIEW –

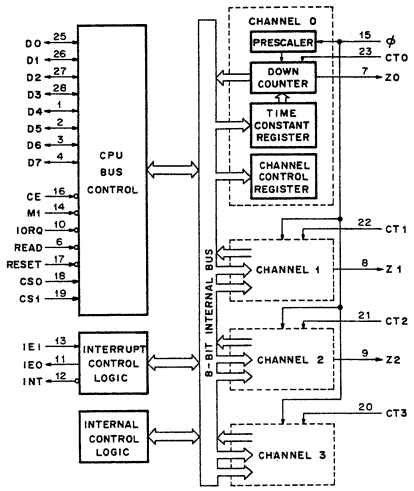


Ø ; SYSTEM CLOCK
CE ; CHIP ENABLE
CSO, CS1 ; CHANNEL SELECT
CTO-CT3 ; EXTERNAL CLOCK/TIMER TRIGGER
DO-D7 ; 3-STATE DATA INPUT/OUTPUT
IEI ; INTERRUPT ENABLE INPUT
IEO ; INTERRUPT ENABLE OUTPUT
INT ; INTERRUPT REQUEST (OPEN DRAIN)
IORQ ; I/O REQUEST
M1 ; MACHINE CYCLE 1
READ ; READ CYCLE STATUS
ZO-Z2 ; ZERO COUNT/TIME OUT

CHANNEL SELECT FUNCTION

CS1	CSO	SELECTED CHANNEL
0	0	0
0	1	1
1	0	2
1	1	3

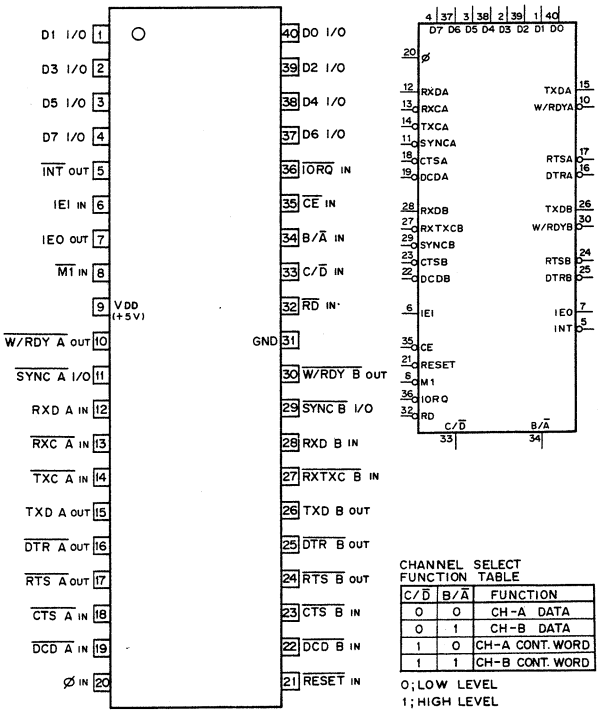
0 ; LOW LEVEL
1 ; HIGH LEVEL



TMPZ84C40AP-8 (TOSHIBA)

C-MOS 2-CHANNEL SERIAL INPUT/OUTPUT FOR MICROCOMPUTER SYSTEM

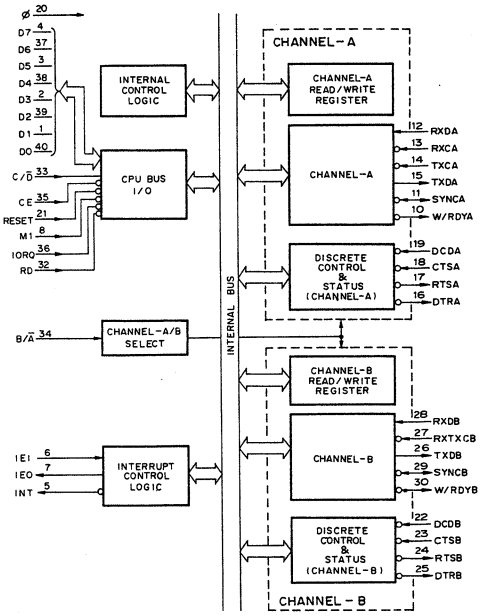
– TOP VIEW –



CHANNEL SELECT FUNCTION TABLE

C/D̄	B/Ā	FUNCTION
0	0	CH-A DATA
0	1	CH-B DATA
1	0	CH-A CONT. WORD
1	1	CH-B CONT. WORD

0 ; LOW LEVEL
1 ; HIGH LEVEL

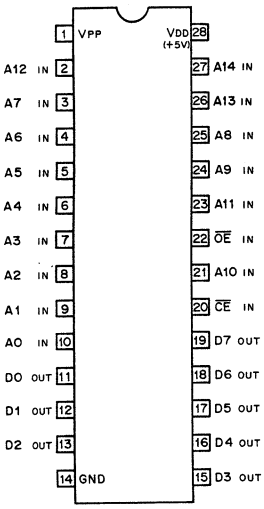


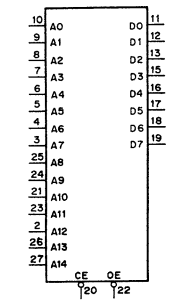
Ø ; SYSTEM CLOCK IN
D7-DO ; DATA BUS(3 STATE) I/O
C/D̄ ; CONTROL/DATA SELECT IN
CE ; CHIP ENABLE IN
M1 ; MACHINE CYCLE 1 IN
IORQ ; I/O REQUEST IN
RD ; READ IN
B/Ā ; CHANNEL B/A SELECT IN
IEI ; INTERRUPT ENABLE IN
IEO ; INTERRUPT ENABLE OUT
INT ; INTERRUPT OUT

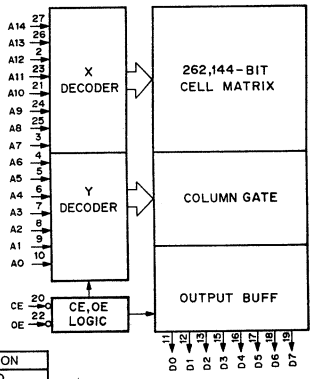
RXD ; RECEIVE DATA IN
RXC ; RECEIVE CLOCK IN
TXC ; TRANSMIT CLOCK IN
TXD ; TRANSMIT DATA OUT
SYNC ; EXTERNAL CHARACTER SYNCHRONIZATION I/O
W/RDY ; WAIT/READY OUT
DCD ; DATA CARRIER DETECT IN
CTS ; CLEAR TO SEND IN
RTS ; REQUEST TO SEND OUT
DTR ; DATA TERMINAL READY OUT

TMS27C256-20JL (TI)

C-MOS 256K (32Kx8)-BIT ERASABLE PROM WITH 3-STATE OUTPUTS
– TOP VIEW –







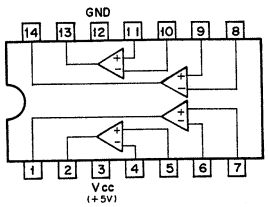
A0 – A14 : ADDRESS INPUT
$\overline{CE}$: CHIP ENABLE INPUT
D0 – D7 : DATA OUTPUT
$\overline{OE}$: OUTPUT ENABLE INPUT
V_{PP} : PROGRAM POWER SUPPLY

An	$\overline{CE}$	$\overline{OE}$	V_{PP}	Dn	FUNCTION
An	0	0	+ 5V	D_{OUT}	READ
An	0	1	+ 5V	HI-Z	OUTPUT DISABLE
X	1	X	+ 5V	HI-Z	STANDBY
An	0	1	+ 21V	D_{IN}	PGM
An	0	0	+ 21V	D_{OUT}	PGM VERIFY
X	1	1	+ 21V	HI-Z	PGM INH

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z : HIGH IMPEDANCE

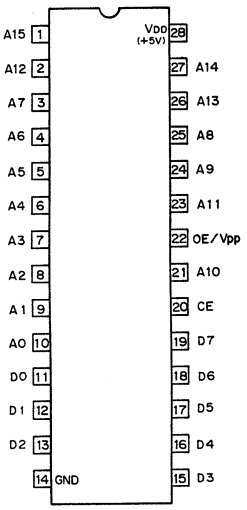
UPC339C (NEC)

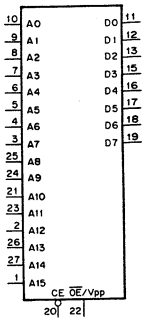
QUAD COMPARATORS
– TOP VIEW –



TMS27C512-20JL (TI)

C-MOS 512K (65,536x8 = 524,288)-BIT ERASABLE PROM
– TOP VIEW –

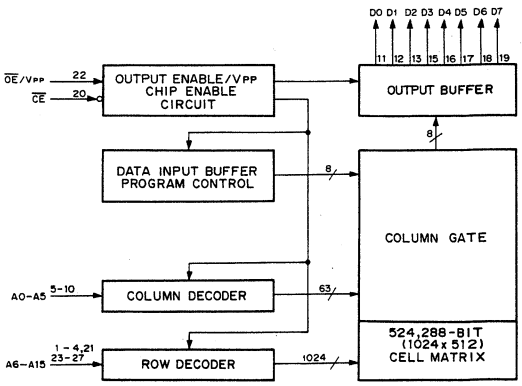




A0 – A15 : ADDRESS INPUTS
CE : CHIP ENABLE INPUT
D0 – D7 : DATA OUTPUTS
OE : OUTPUT ENABLE INPUT
V_{PP} : PROGRAM POWER SUPPLY

An	CE	$\overline{OE}/V_{PP}$	V_{DD}	Dn	FUNCTION
A_{IN}	0	0	+5V	D_{OUT}	READ
A_{IN}	0	1	+5V	HI-Z	OUTPUT DISABLE
X	1	X	+5V	HI-Z	STANDBY
A_{IN}	0	+12.5V	+6V	D_{IN}	PGM
A_{IN}	0	0	+6V	D_{OUT}	PGM VERIFY
X	1	+12.5V	+6V	HI-Z	PGM INH

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z : HIGH IMPEDANCE



SECTION 7
SPARE PARTS AND OPTIONAL FIXTURES

7-1. NOTES ON SPARE PARTS

(1) Safety Related Components Warning

Components marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

(2) Standardization of Parts

Spare parts supplied from Sony Parts Center may not always be identical with the parts which actually in use due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts".

This manual's exploded views and electrical spare parts list indicate the part numbers of "the standardized genuine parts at present".

(3) Stock of Parts

Parts marked with "o" in the SP(Supply Code)column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

(4) Units for Capacitors and Resistors

The following units may be assumed in schematic diagrams and electrical parts list unless otherwise specified.

Capacitor : μF is omitted in only schematic diagrams.
Inductor : "p" of pF is omitted in only schematic diagrams.
Resistor : Ω

補修用部品注意事項

(1) 安全重要部品

回路図、分解図、電気部品表中、⚠印の部品は安全性を維持するために重要な部品です。従ってこれらの部品を交換するときには必ず指定の部品と交換して下さい。

(2) 部品の共通化

ソニーから供給される部品セットに実装されているものと異なることがあります。これは部品の共通化、改良等によるものです。

分解図や電気部品表には現時点での共通化された部品が記載されています。

(3) 部品の在庫

部品表のSP (Supply code) 欄にoで示される部品は交換頻度が低い部品ですので在庫していないことがあり、納期が長くなることがあります。

(4) コンデンサ、抵抗の単位

回路図、電気部品表中、特に明記したものを除き、下記の単位は省略されています。

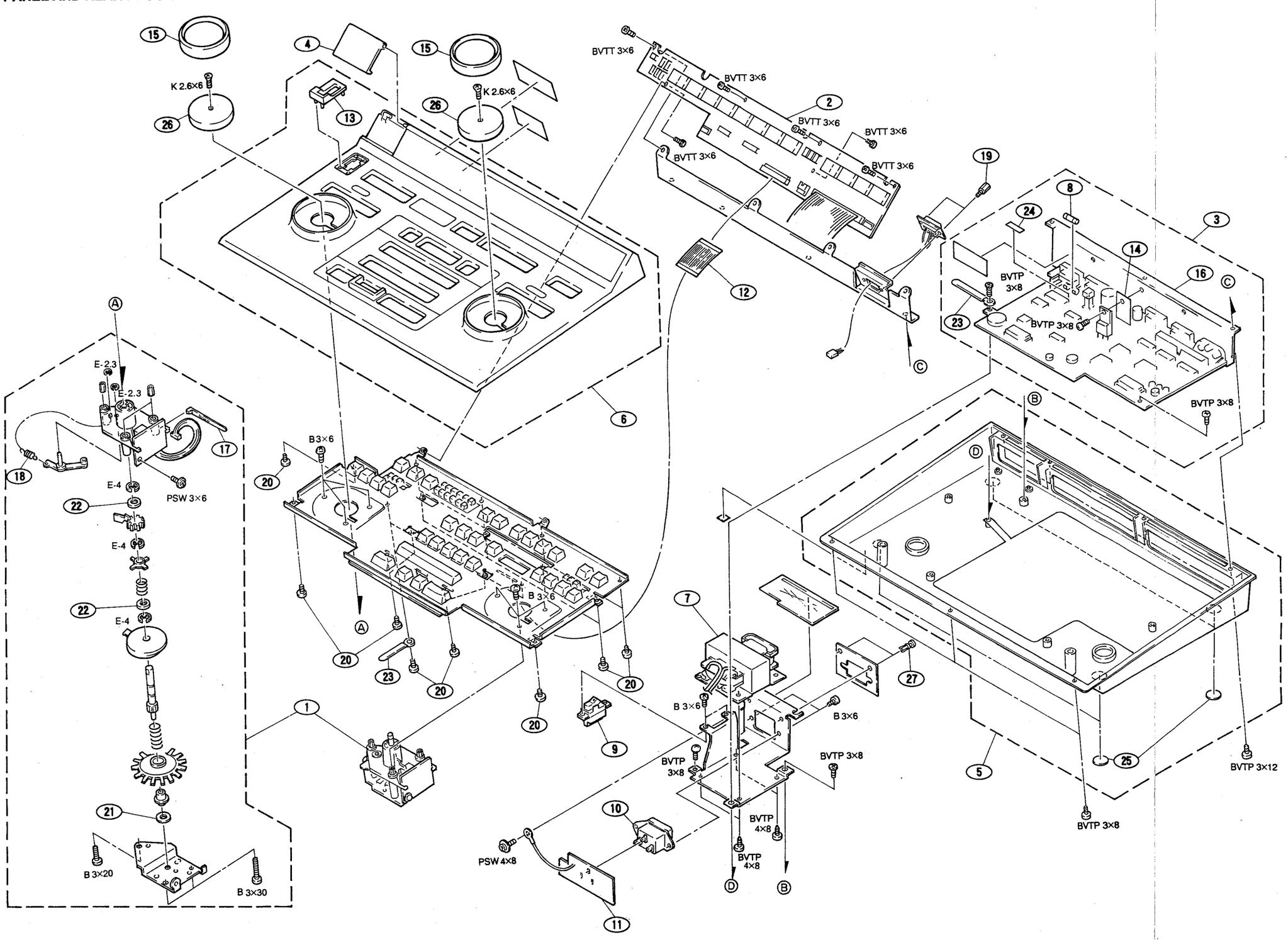
コンデンサ : μF (回路図のみ省略)
インダクタ : pFのF (回路図のみ省略)
抵抗 : Ω

7-2. EXPLODED VIEW

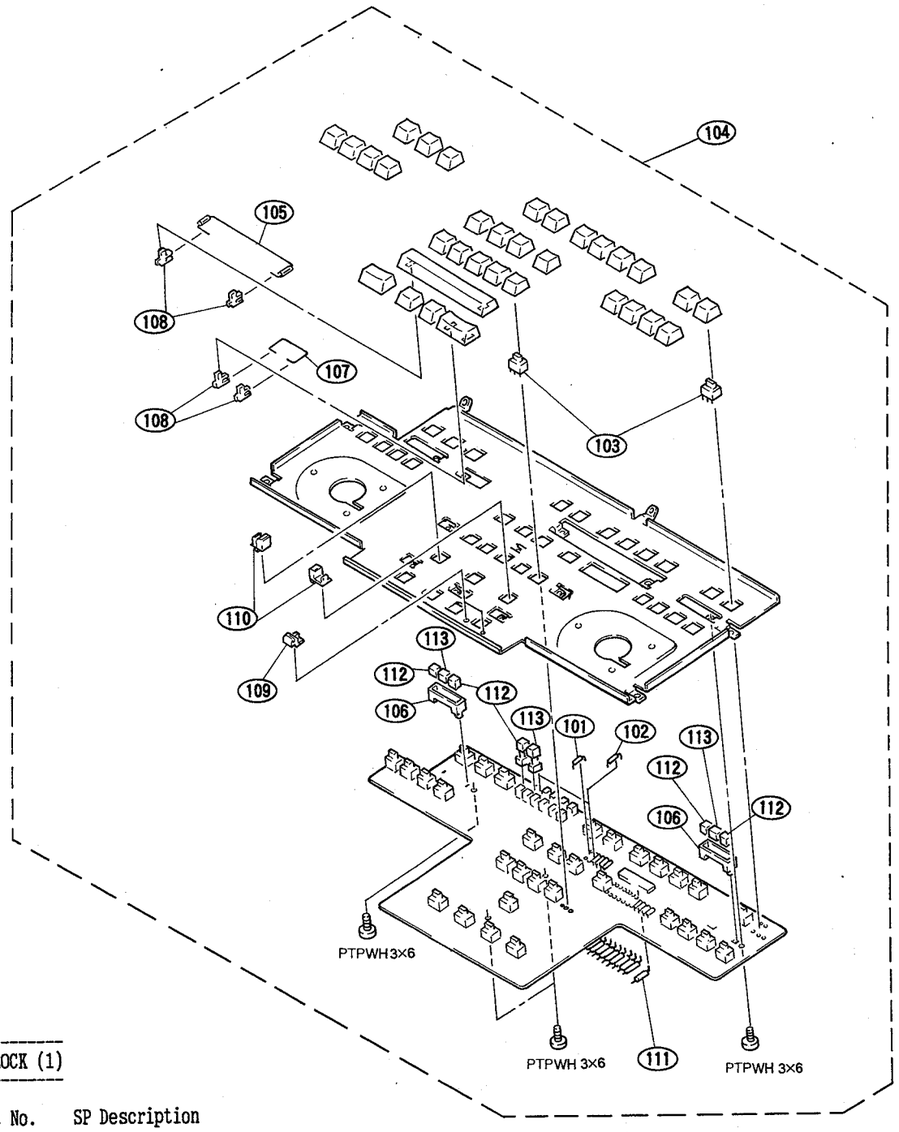
PANEL AND REAR BLOCK

No.	Part No.	SP	Description
1	A-6734-249-A	s	DIAL ASSY, SERCH
2	A-8275-299-A	o	MOUNTED CIRCUIT BOARD, DSP-53
3	A-8275-300-A	o	MOUNTED CIRCUIT BOARD, CPU-150
4	X-3167-246-1	o	DOOR ASSY
5	X-3167-247-1	o	CASE SUB ASSY, BOTTOM
6	X-3167-248-2	o	PANEL SUB ASSY
7	⚠1-449-178-11	s	TRANSFORMER, POWER
8	⚠1-532-742-11	s	FUSE, GLASS TUBE 1.6A (FOR J, UC)
	⚠1-532-259-00	s	FUSE, TIME-LAG 1.6A 250V (FOR EK)
9	⚠1-570-117-11	s	SWITCH, SEESAW (AC POWER)
10	⚠1-580-375-11	s	INLET 3P
11	1-625-671-11	o	PRINTED CIRCUIT BOARD, AC-1
12	1-696-147-11	s	WIRE, FLEXIBLE CARD 26P
13	2-251-642-01	s	GUARD, POWER SWITCH
14	2-284-758-01	o	INSULATOR
15	3-182-417-01	s	RUBBER, KNOB
16	3-182-422-02	o	PANEL, REAR
17	3-509-140-00	o	HOLDER, WIRE
18	3-639-371-00	s	SPRING, TENSION
19	3-673-910-21	o	SCREW, CONNECTOR
20	3-678-079-01	s	+BVWH 3X8 GIZA TITE
21	3-701-441-11	s	WASHER
22	3-701-443-21	s	WASHER, 5 DIA
23	3-701-822-01	o	HOLDER, WIRE
24	3-701-947-13	o	LABEL (1.6A), FUSE (FOR EK)
25	3-714-101-01	o	LEG (FRONT)
26	3-717-370-01	o	KNOB, DIAL
27	4-812-134-11	s	RIVET NYLON, 3.5

PANEL AND REAR BLOCK



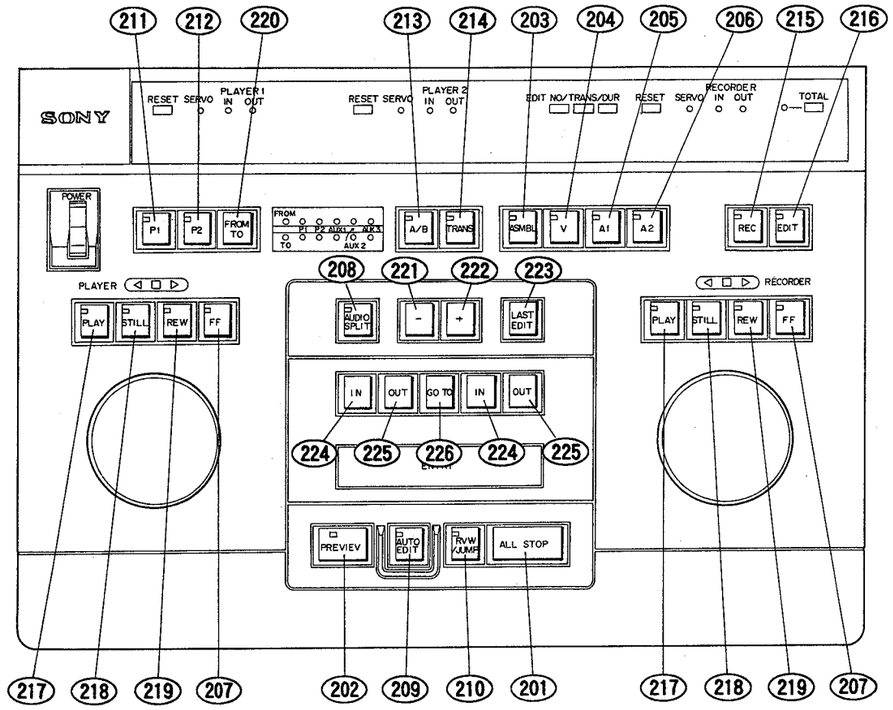
KEYBOARD BLOCK (1)



KEY BOARD BLOCK (1)

No.	Part No.	SP	Description
101	1-249-400-11	s	CARBON 39 5% 1/4W
102	1-249-404-00	s	CARBON 82 5% 1/4W
103	1-571-505-11	s	SWITCH, PUSH
104	1-589-561-11	o	KEY BOARD ASSY
105	2-284-761-01	o	LINK
106	2-284-799-01	o	HOLDER, LED
107	4-605-532-11	s	LINK
108	4-605-534-02	s	BOSS (UPPER), LINK
109	4-605-535-01	s	BOSS (LOWER), LINK
110	4-605-536-01	s	BOSS, GUIDE
111	8-719-820-59	s	DIODE 1S1588
112	8-719-946-52	s	LED GL8EG22, GREEN
113	8-719-981-55	s	LED GL8HD22, RED

KEYBOARD BLOCK (2)



KEY BOARD BLOCK (2)

No.	Part No.	SP	Description
201	2-284-772-01	o	KEY TOP (G2)
202	2-284-778-11	o	KEY TOP (G1.5LED)
203	2-284-781-09	o	KEY TOP (G1LED)
204	2-284-781-10	o	KEY TOP (G1LED)
205	2-284-781-11	o	KEY TOP (G1LED)
206	2-284-781-12	o	KEY TOP (G1LED)
207	3-182-423-01	o	KEY TOP (G1LED-2)
208	3-182-423-11	o	KEY TOP (G1LED-2)
209	3-182-423-21	o	KEY TOP (G1LED-2)
210	3-182-423-31	o	KEY TOP (G1LED-2)
211	3-182-424-01	o	KEY TOP (G1LED-1)
212	3-182-424-11	o	KEY TOP (G1LED-1)
213	3-182-424-21	o	KEY TOP (G1LED-1)
214	3-182-424-31	o	KEY TOP (G1LED-1)
215	3-182-424-41	o	KEY TOP (G1LED-1)
216	3-182-424-51	o	KEY TOP (G1LED-1)
217	3-182-424-61	o	KEY TOP (G1LED-1)
218	3-182-424-71	o	KEY TOP (G1LED-1)
219	3-182-424-81	o	KEY TOP (G1LED-1)
220	3-182-425-01	o	KEY TOP (G1)
221	3-182-425-11	o	KEY TOP (G1)
222	3-182-425-21	o	KEY TOP (G1)
223	3-182-425-31	o	KEY TOP (G1)
224	3-182-425-41	o	KEY TOP (G1)
225	3-182-425-51	o	KEY TOP (G1)
226	3-182-425-61	o	KEY TOP (G1)

7-3. ELECTRICAL PARTS LIST

AC-1 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-625-671-11	o	PRINTED CIRCUIT BOARD, AC-1

CPU-150 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-300-A	o	MOUNTED CIRCUIT BOARD, CPU-150
2pcs	1-526-659-00	o	SOCKET, IC 28P
2pcs	1-533-189-11	s	HOLDER, FUSE
10pcs	7-682-548-04	s	SCREW +B 3X8
1pc	7-685-646-79	s	SCREW +BVTP 3X8 TYPE2 N-S
1pc	7-685-872-01	s	SCREW +BVTT 3X8 (S)
BZ1	1-529-025-00	s	BUZZER
C1	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C2-C6	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C7	1-107-601-11	s	CERAMIC 33PF 5% 500V
C8	1-107-601-11	s	CERAMIC 33PF 5% 500V
C9-C14	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C15	1-126-937-11	s	ELECT 4700uF 20% 16V
C16	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C17	1-107-601-11	s	CERAMIC 33PF 5% 500V
C18	1-126-937-11	s	ELECT 4700uF 20% 16V
C19	1-135-179-21	s	TANTALUM 2.2uF 10% 16V
C20	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C21	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C22	1-107-601-11	s	CERAMIC 33PF 5% 500V
C23	1-107-601-11	s	CERAMIC 33PF 5% 500V
C24	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C25	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C26	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C27	1-126-926-11	s	ELECT 1000uF 20% 10V
C28	1-135-179-21	s	TANTALUM 2.2uF 10% 16V
C29	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C30	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C31	1-107-601-11	s	CERAMIC 33PF 5% 500V
C32	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C33	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C34	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C35	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C36	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C37	1-125-486-11	s	DOUBLE LAYERS 0.22FARAD 5.5V
C38	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C39-C48	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C49	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C50	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C51	1-104-563-11	s	FILM 0.1uF 5% 16V
C52	1-104-563-11	s	FILM 0.1uF 5% 16V
C53-C57	1-126-401-11	s	ELECT, CHIP 1uF 20% 50V
C58	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C59	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C60	1-163-253-11	s	CERAMIC, CHIP 120PF 5% 50V
C61-C67	1-163-125-00	s	CERAMIC, CHIP 220PF 5% 50V
C68-C74	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
CN1-CN5	1-563-770-11	o	CONNECTOR, D-SUB 9P, FEMALE
CN6	1-691-431-11	s	CONNECTOR, 3-BNC, FEMALE
CN7	1-564-104-00	o	CONNECTOR, VH 3P, MALE
CN8	1-566-312-11	s	CONNECTOR, 50P, MALE
D1	8-719-510-14	s	DIODE S2VB10
D2	8-719-110-39	s	DIODE RD15ESB1
D3	8-719-980-78	s	DIODE ERA81-004
D4	8-719-109-93	s	DIODE RD6.2ES-B2
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119

(CPU-150 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D7	8-719-918-88	s	DIODE 1SS198
ICA2	8-759-177-57	s	IC AM26C31CNS
ICA3	8-759-239-18	s	IC TMPZ84C40AP-8
ICA4	8-759-239-46	s	IC TMPZ84C30AM-6
ICB2	8-759-177-56	s	IC AM26C32CNS
ICB5	8-759-246-66	s	IC TMPZ84C015BF-6
ICB7	8-759-192-19	o	IC 27C512-E500MV100, EPROM
ICC3	8-759-937-29	s	IC MB88201H-539N
ICC4	8-759-008-13	s	IC MC74HC390F
ICC5	8-759-926-12	s	IC SN74HC139NS
ICC6	8-759-927-46	s	IC SN74HC00NS
ICD1	8-749-920-71	s	IC SI3522V
ICD2	8-759-177-57	s	IC AM26C31CNS
ICD3	8-759-937-29	s	IC MB88201H-539N
ICD4	8-759-926-98	s	IC SN74HC4040NS
ICD5	8-759-925-85	s	IC SN74HC32NS
ICD6	8-759-507-51	s	IC CXK5864BM-12LL
ICE2	8-759-177-56	s	IC AM26C32CNS
ICE3	8-759-995-77	s	IC MSM16911PRS
ICE4	8-759-995-76	s	IC PST529C
ICE5	8-759-925-74	s	IC TC74HC04NS
ICF2	8-759-171-50	s	IC MAX506BCPP
ICF3	8-759-246-66	s	IC TMPZ84C015BF-6
ICF5	8-759-973-43	s	IC MB8421-90LPFQ
ICG2	8-759-243-15	s	IC TD62785P
ICG3	8-759-938-68	s	IC CXD1095Q
ICG4	8-759-930-00	s	IC SN74LS33NS
ICG5	8-759-192-20	o	IC 27C256-E500SV100, EPROM
ICH2	8-759-207-07	s	IC TD62381P
ICH4	8-759-972-26	s	IC LM1881N
ICH5	8-759-065-85	s	IC MAX232N
L1	1-410-658-31	s	INDUCTOR, CHIP 220UH
Q1	8-729-119-76	s	TRANSISTOR 2SA1115P
R1	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R2	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R3	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R4	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R5	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R6	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R7	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R8	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R9	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R10	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R11	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R12	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R13-R39	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R40	1-247-807-31	s	CARBON 100 5% 1/4W
R41	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R42	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R43	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R44	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R45	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R46	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R47	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W

(CPU-150 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R48	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R49	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R50	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R51	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R52	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R53	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R54	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R55	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R56	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R57	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R58	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R59	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R60	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R61	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R62	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R63	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R64	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R65-R81	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R82	1-216-022-00	s	METAL, CHIP 75 5% 1/10W
R83	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R84	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R85-R117	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R118	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R119	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R120	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R121	1-216-117-00	s	METAL, CHIP 680K 5% 1/10W
R122	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R123	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R124-131	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
S1	1-570-165-11	s	SWITCH, PUSH (1 KEY)
S2	1-552-909-00	s	SWITCH, PUSH
X1	1-567-797-11	s	RESONATOR, CERAMIC 12.00000000MHz
X2	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz
X3	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

DSP-53 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-299-A	o	MOUNTED CIRCUIT BOARD, DSP-53
C1	1-161-494-00	s	CERAMIC 0.022uF 25V
C2	1-162-290-31	s	CERAMIC 470PF 10% 50V
C3	1-161-494-00	s	CERAMIC 0.022uF 25V
C4	1-162-290-31	s	CERAMIC 470PF 10% 50V
C5	1-161-494-00	s	CERAMIC 0.022uF 25V
C6	1-162-290-31	s	CERAMIC 470PF 10% 50V
C7	1-161-494-00	s	CERAMIC 0.022uF 25V
C8	1-162-290-31	s	CERAMIC 470PF 10% 50V
C9	1-124-584-00	s	ELECT 100uF 20% 10V
C10	1-161-494-00	s	CERAMIC 0.022uF 25V
C11-C14	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C15	1-161-494-00	s	CERAMIC 0.022uF 25V
C16-C19	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
CN1	1-506-485-11	s	CONNECTOR 6P, MALE
CN2	1-562-686-11	o	CONNECTOR, FPC 26P
CN3	1-560-365-00	o	CONNECTOR,ILG 3P, MALE
CN4	1-751-643-11	o	CABLE, FLAT (DSP)
CN5	1-506-485-11	s	CONNECTOR 6P, MALE
D1	8-719-800-92	s	LED TLUG143, GREEN
D2	8-719-800-91	s	LED TLUR143, RED
D3	8-719-800-91	s	LED TLUR143, RED
D4	8-719-800-92	s	LED TLUG143, GREEN
D5	8-719-800-91	s	LED TLUR143, RED
D6	8-719-800-91	s	LED TLUR143, RED
D7	8-719-800-92	s	LED TLUG143, GREEN
D8	8-719-800-91	s	LED TLUR143, RED
D9	8-719-800-91	s	LED TLUR143, RED
D10	8-719-800-91	s	LED TLUR143, RED
D11-D18	8-719-970-35	s	LED LB-402VA, RED
D19	8-719-951-37	s	LED LA-301VB, RED
D20	8-719-951-37	s	LED LA-301VB, RED
D21	8-719-951-37	s	LED LA-301VB, RED
D22-D25	8-719-970-35	s	LED LB-402VA, RED
D26-D31	8-719-911-19	s	DIODE 1SS119
IC1-IC4	8-759-981-03	s	IC 74AC373PC
R1-R17	1-249-404-00	s	CARBON 82 5% 1/4W
R18	1-249-401-11	s	CARBON 47 5% 1/4W
R19	1-249-404-00	s	CARBON 82 5% 1/4W
R20	1-249-401-11	s	CARBON 47 5% 1/4W
R21	1-249-404-00	s	CARBON 82 5% 1/4W
R22	1-249-401-11	s	CARBON 47 5% 1/4W
R23	1-249-404-00	s	CARBON 82 5% 1/4W
R24-R30	1-249-409-11	s	CARBON 220 5% 1/4W
R31-R41	1-249-429-11	s	CARBON 10K 5% 1/4W
R42-R48	1-249-404-00	s	CARBON 82 5% 1/4W
S1	1-571-404-11	s	SWITCH, PUSH
S2-S6	1-570-056-11	s	SWITCH, SLIDE
S7-S13	1-553-856-00	s	SWITCH, TACTILE

PTC-32 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-564-026-00	o	CONTACT, FEMALE AWG26-30
C1	1-124-228-11	s	ELECT 22uF 20% 10V
CN4	1-562-151-11	s	HOUSING 6P
IC1	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC2	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC3	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53
IC4	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC5	8-759-133-90	s	IC UPC339C
R1	1-247-823-31	s	CARBON 470 5% 1/4W
R2	1-247-823-31	s	CARBON 470 5% 1/4W
R3	1-247-847-31	s	CARBON 4.7K 5% 1/4W
R4	1-247-839-31	s	CARBON 2.2K 5% 1/4W
R5	1-247-855-31	s	CARBON 10K 5% 1/4W
R6	1-247-823-31	s	CARBON 470 5% 1/4W
R7	1-247-855-31	s	CARBON 10K 5% 1/4W
R8	1-247-847-31	s	CARBON 4.7K 5% 1/4W
R9	1-247-823-31	s	CARBON 470 5% 1/4W
R10	1-247-847-31	s	CARBON 4.7K 5% 1/4W

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-580-375-11	s	INLET 3P
1pc	1-696-147-11	s	WIRE, FLEXIBLE CARD 26P (CN1/KEYBOARD ASSY TO CN2/DSP-53 BOARD)
1pc	1-751-643-11	o	WIRE, FLEXIBLE CARD 50P (CN3/DSP-53 BOARD TO CN705/REAR PANEL)
1pc	1-952-515-11	o	HARNESS, SUB (232) (CN4/DSP-53 BOARD TO CN8/CPU-250 BOARD)
1pc	⚠1-532-742-11	s	FUSE, GLAS TUBE 1.6A (FOR J,UC)
1pc	⚠1-532-259-00	s	FUSE, TIME-LAG 1.6A 250V (FOR EK)
S701	⚠1-570-117-11	s	SWITCH, SEESAW (AC POWER)
T701	⚠1-449-178-11	s	TRANSFORMER, POWER

7-4. PACKING MATERIAL & SUPPLIED ACCESSORIES

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-534-754-00	s	CORD POWER, 2P (FOR J)
1pc	⚠1-551-812-11	s	CORD, POWER 3P (FOR UC)
1pc	⚠1-590-910-11	s	CORD, POWER 3P (FOR EK)
1pc	⚠3-757-576-01	s	MANUAL, INSTRUCTION
1pc	3-795-581-21	o	SAFEGUARD (SONY), IMPORTANT(FOR UC)

7-5. OPTIONAL FIXTURES

OPTIONAL FIXTURES

Ref. No. or Q'ty	Part No.	SP	Description
	J-6210-220-A	o	D-SUB 9-PIN SHORTIG CONNECTOR (MALE)
	1-568-181-11	o	D-SUB 9-PIN SHORTING CONNECTOR (FEMALE)